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A REPORT ON WATER QUALITY BASIC DATA SOUTHEAST RIVER BASINS

Public Health Service
Atlanta, Georgia

1961

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A Report on

WATER QUALITY BASIC DATA

SOUTHEAST RIVER BASINS

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
PUBLIC HEALTH SERVICE, REGION IV
WATER SUPPLY AND POLLUTION CONTROL PROGRAM
ATLANTA, GEORGIA

1961

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TABLE OF CONTENTS

Page

LIST OF TABLES ii

LIST OF FIGURES iv

INTRODUCTION 1

ACKNOWLEDGEMENT 1

COLLECTION OF DATA 2

SCOPE OF REPORT 4

WATER QUALITY CHARACTERISTICS 5

  Chemical Characteristics 5

  Physical Characteristics 9

  Bacteriological Characteristics 10

SECTION I
EXISTING DATA

SAVANNAH BASIN 15

OGEECHEE BASIN 37

ALTAMAHA BASIN 47

SATILLA-ST. MARYS BASIN 63

SUWANNEE BASIN 75

OCHLOCKONEE BASIN 89

APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN 103

CHOCTAWHATCHEE-PERDIDO BASIN 133

SECTION II
WATER QUALITY FIELD STUDY

INTRODUCTION 171

DISCUSSION OF RESULTS 172

BIBLIOGRAPHY 193

(8/15/61)

LIST OF TABLES

Table | Page

SAVANNAH BASIN
Summary of Water Quality Characteristics
1-1 Surface Water 17
1-2 Ground Water 27
1-3 Radioactivity in Water 35

OGEECHEE BASIN
Summary of Water Quality Characteristics
2-1 Surface Water 39
2-2 Ground Water 43

ALTAMAHA BASIN
Summary of Water Quality Characteristics
3-1 Surface Water 49
3-2 Ground Water 55

SATILLA-ST. MARYS BASIN
Summary of Water Quality Characteristics
4-1 Surface Water 65
4-2 Ground Water 69
4-3 Radioactivity in Water 73

SUWANNEE BASIN
Summary of Water Quality Characteristics
5-1 Surface Water 77
5-2 Ground Water 81
5-3 Radioactivity in Water 85

OCHLOCKONEE BASIN
Summary of Water Quality Characteristics
6-1 Surface Water 91
6-2 Ground Water 95
6-3 Radioactivity in Water 99

APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
Summary of Water Quality Characteristics
7-1 Surface Water 107
7-2 Ground Water 119
7-3 Radioactivity in Water 131

CHOCTAWHATCHEE-PERDIDO BASIN
Summary of Water Quality Characteristics
8-1 Surface Water 137
8-2 Ground Water 157
8-3 Radioactivity in Water 165

(8/15/61)

LIST OF TABLES (CONT'D)

Table Page

SOUTHEAST RIVER BASINS

0-1 Description of Sampling Stations 179
Summary of Water Quality Characteristics
0-2 Surface Water 185

LIST OF FIGURES

Figure Page

1 SOUTHEAST RIVER BASINS v

SAVANNAH BASIN
Location of Sampling Stations

1-1 Surface Water 23
1-2 Ground Water 31

OGEECHEE BASIN
Location of Sampling Stations

2-1 Surface Water 41
2-2 Ground Water 45

ALTAMAHA BASIN
Location of Sampling Stations

3-1 Surface Water 51
3-2 Ground Water 59

SATILLA-ST. MARYS BASIN
Location of Sampling Stations

4-1 Surface Water 67
4-2 Ground Water 71

SUWANNEE BASIN
Location of Sampling Stations

5-1 Surface Water 79
5-2 Ground Water 83

OCHLOCKONEE BASIN
Location of Sampling Stations

6-1 Surface Water 93
6-2 Ground Water 97

APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
Location of Sampling Stations

7-1 Surface Water 113
7-2 Ground Water 125

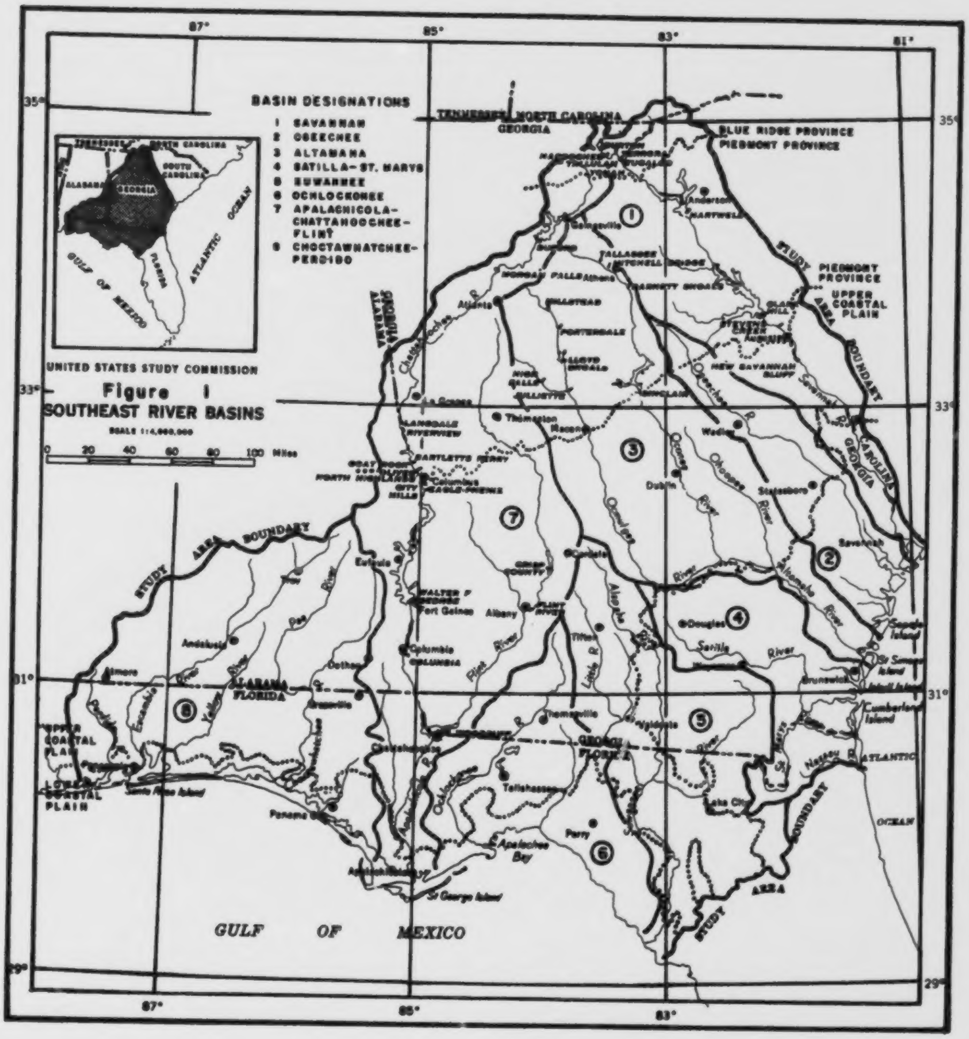
CHOCTAWHATCHEE-PERDIDO BASIN
Location of Sampling Stations

8-1 Surface Water 153
8-2 Ground Water 161

SOUTHEAST RIVER BASINS
Location of Sampling Stations

0-1 Surface Water 183

(8/15/61)


87°
85°
83°
81°
35°
33°
31°
29°
BASIN DESIGNATIONS
1 SAVANNAH
2 OGEECHEE
3 ALTAMAHA
4 SATILLA-ST. MARYS
5 SUWANNEE
6 OCHLOCKONEE
7 APALACHICOLA-CHATTAHOOCHEE-FLINT
8 CHOCTAWHATCHEE-PERDIDO
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ALABAMA
GEORGIA
FLORIDA
GULF OF MEXICO
ATLANTIC OCEAN
BLUE RIDGE PROVINCE
PIEDMONT PROVINCE
UPPER COASTAL PLAIN
LOWER COASTAL PLAIN
STUDY AREA BOUNDARY
Atlanta
Athens
Gainesville
Anderson
Hartwell
Macon
Thomaston
La Grange
Columbus
Eufaula
Fort Gaines
Albany
Tifton
Cordele
Dublin
Douglas
Valdosta
Thomasville
Tallahassee
Perry
Lake City
Savannah
Brunswick
Statesboro
Andalusia
Dothan
Atmore
Panama City
Pensacola
Apalachee Bay
St George Island
Sapelo Island
St Simons Island
Cumberland Island
Chattahoochee R.
Flint River
Oconee River
Ocmulgee River
Altamaha River
Ogeechee River
Savannah River
Satilla River
Alapaha R.
Little R.
Ochlockonee R.
Yellow River
Escambia River
Pea River
Choctawhatchee R.
St. Marys
Nassau R.

UNITED STATES STUDY COMMISSION

Figure 1
SOUTHEAST RIVER BASINS

SCALE 1:4,000,000

0 20 40 60 80 100 Miles

AUGUST 1961

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INTRODUCTION

The U. S. Study Commission, Southeast River Basins, in its long range planning of land and water resource development for the Southeast River Basins recognized the need for a compilation of water quality data. On September 13, 1960, the Commission made arrangements with the U. S. Public Health Service for a summarization of the bacteriological, biochemical, radiological, chemical, and physical characteristics of both the surface and ground waters of the study area on a reimbursable basis. Realizing that such data were not uniformily available for the entire area, Study Commission funds were also provided for field studies of surface water quality.

The report consists of a compilation of data obtained from many sources, both governmental and private. An attempt has been made to make this report as complete as possible presenting all the data which were obtained from the many agencies and firms contacted. It is recognized that certain sources of information may have been overlooked but it is felt that this report contains most of the data which is available on the ground and surface water quality of the Southeast River Basins.

ACKNOWLEDGEMENT

The data presented in this report represents many man-hours of work both in the field and in the laboratories by individuals too numerous to list. However, the agencies and firms for which these individuals performed their work can be identified and are accordingly listed here.

South Carolina Water Pollution Control Authority
South Carolina State Health Department
South Carolina Research, Planning and Development Board
Georgia Department of Public Health
Georgia Department of Mines, Mining, and Geology
Florida State Board of Health
Florida State Board of Conservation
Alabama Department of Public Health
Alabama Water Improvement Commission
Geological Survey of Alabama
U. S. Geological Survey
U. S. Fish and Wildlife Service

Revised
(11/13/61)

U. S. Public Health Service
Atomic Energy Commission
Coca-Cola Company
Law and Company
F. E. Myers and Brothers Company
Calgon Company

The compilation of the data presented in this report was made by the Water Resources Development Section, Division of Water Supply and Pollution Control in the Region IV office of the Public Health Service. The participation of the Georgia State Department of Public Health, the Southeastern Radiological Health Facilities, and the Robert A. Taft Sanitary Engineering Center of the U. S. Public Health Service in the field studies conducted as part of this study is gratefully acknowledged.

COLLECTION OF DATA

Surface Water

In reviewing the surface water quality data it was found that for five of the eight basins in the study area, data were almost completely lacking. Existing data on physical, chemical, radiological, and bacteriological characteristics of the surface waters of the Savannah, the Chattahoochee Portion of the Apalachicola-Chattahoochee-Flint, and the Choctawhatchee-Perdido Basins appeared adequate to define the quality of surface waters in these basins. For the remaining five basins -- Ogeechee, Altamaha, Satilla-St. Marys, Suwannee, and Ochlockonee -- it was felt that a program of surface water sampling would need to be established.

After carefully considering the basin areas for which data were needed and guided by the funds, personnel and facilities which were available, a network of twenty-seven surface water quality sampling stations were established. As most of these stations were located within the Georgia portion of the study area, the Georgia State Health Department was consulted and their approval obtained prior to the establishment of the stations. Primary consideration was given first to whether the station would provide a representative sample of stream water quality, and secondly to the availability of a gaging station correlating water quality directly to water quantity.

Twenty-one of the twenty-seven stations were located at or near active USGS gaging stations and five were located at former gaging stations for which either staff or stage readings could be obtained; leaving only one station where flow needed to be estimated from other stations.

The number of sampling stations established in each basin were as follows:

Basin Number	Basin Name	Number of Water Quality Field Study Sampling Stations
1	Savannah	1
2	Ogeechee	4
3	Altamaha	9
4	Satilla - St. Marys	3
5	Suwannee	4
6	Ochlockonee	1
7	Apalachicola - Chattahoochee - Flint	5
8	Choctawhatchee - Perdido	0
	Total	27

The existing data on the quality of surface waters for the five basins from the Ogeechee to the Ochlockonee were limited primarily to chemical analyses, a great deal of which were collected in the early 1950's. The major source of these data were reports of the U. S. Geological Survey, the Georgia Department of Mines, Mining, and Geology, and the Florida Department of Conservation. In the remaining three basins, existing physical, chemical, radiological, and bacteriological data were sufficient to adequately define the quality of the surface waters of these basins with few exceptions. These data were obtained primarily from published and unpublished reports of the South Carolina State Health Department, the Alabama Water Improvement Commission, the Florida State Board of Health, and the U. S. Public Health Service.

Ground Water

The availability of existing quality data on ground water followed generally the same pattern as surface water. With the possible exception of the Altamaha Basin, the five middle basins had less data available than did the other three. However, the coverage of ground water quality data was much more extensive than the surface water data although limited primarily to chemical analyses. Data on the quality of ground water were obtained from many sources including the U. S. Geological Survey, the South Carolina Department of Public Health, the Georgia Department of Mines, Mining, and Geology, the Georgia State Department of Public Health, the Alabama State Department of Public Health, the Florida State Board of Health, the South Carolina Research, Planning, and Development Board, and various other state agencies in South Carolina, Georgia, Alabama, and Florida and private laboratories, consulting engineers, and industrial firms.

Data on the radiological quality of ground waters as well as for surface waters were obtained from reports of the Florida State Board of Health, the Alabama Water Improvement Commission, and the Atomic Energy Commission. A complete list of the reports used in compiling the data for this report is given in the Bibliography.

SCOPE OF REPORT

This report is an attempt to summarize and present in one document all existing data on the physical, chemical, radiological and bacteriological quality of ground and surface waters in the Southeast River Basins in a manner which can be readily used by the U. S. Geological Survey and others involved in the planning of water resource development projects in this area. The data are presented by basins with a separate tabulation for both ground and surface waters. Because of the special nature of the Water Quality Field Study, the data collected in the study are presented in a separate section of the report.

Individual analyses of ground water supplies serving the same municipalities were averaged and these averages are presented in the tables. In accordance with the Commission request, the aquifers from which these supplies were taken were listed where they were known. As specific information concerning individual formations was rarely available, only the general principal aquifer from which the water was obtained was noted. The three general classifications used in identifying these aquifers were rock, limestone, and sand. Where specific information concerning the formations was available or where this information could be obtained from geological maps, the individual formations were given. The terms used in describing the aquifers are commonly accepted and therefore no explanation of them is given here.

Although most of the analyses of private wells gave no depth and thus the aquifers were unknown, it was felt that these analyses should be included to make as complete a report as possible. Where there were several analyses of private wells in the same municipality results were averaged. Because of the general consistency of the chemical quality of ground waters, the averages tabulated were based on all the analyses for each station regardless of the time they were made. In contrast, the surface water data were averaged annually and both maximum and minimum values were tabulated.

The data on ground water in each basin are tabulated by county starting with the counties in the upper portion of the basin and generally proceeding downward toward the basin mouth. This same tabulating procedure was used for the surface water data except that major river systems within a basin were grouped separately. Basin maps showing the location of sampling stations for both ground water and surface water were prepared and are included together with the data.

Data on the radiological quality of the ground and surface waters are presented separately for each basin. However, the data on both ground and surface waters are combined in the same tables for each basin.

The presentation of the data is divided into two major sections. In the first section, all the available existing data on both surface and ground waters are presented by basins as previously discussed. The second section of the report deals with the data on surface waters which were collected in the special field study conducted during 1960-61.

WATER QUALITY CHARACTERISTICS

Water is known as a "universal solvent" and chemically pure water rarely exists in nature. The gases, dust, etc., present in the atmosphere, type of terrain, and the geology of the region, rate of runoff, and the contact period with the atmosphere, surface and subsurface materials will affect the physical, chemical, and bacteriological quality. Gases absorbed from the atmosphere or being supplied by decomposition may affect the ability of a water to dissolve certain minerals with which it comes in contact. Liquid wastes from municipalities or from industries may have a detrimental effect on the water quality.

Radioactivity of the water is affected by both natural sources and man-made sources. Various ores in which the water comes in contact are the major sources of natural radioactivity. Man-made sources include fallout from nuclear explosives, wastes from use of radioactive isotopes, operation of nuclear reactors, and mining and industrial processing.

CHEMICAL CHARACTERISTICS

Total Dissolved Solids

The total dissolved solids of natural waters consist mainly of the carbonates, bicarbonates, chlorides, and sulfates of calcium, magnesium, sodium, and potassium, and small amounts of iron, manganese, and other substances.

Total dissolved solids are either measured directly by evaporation after filtering or they are determined by summation of the individual mineral constituents of the water. Generally, ground waters contain more dissolved solids than do surface waters.

The current U. S. Public Health Service Drinking Water Standards recommend a limit of 500 ppm for total dissolved solids. This limit is based primarily on the palatability of the water.

The concentration of dissolved solids is significant in industrial water supplies. Their presence can cause foaming and scaling in boilers; interfere with the clearness, color or tastes of many finished products; and upset certain industrial processes.

Silica

The element silicon is not found free in nature but it occurs as silica in sand or quartz and as silicates in feldspar, kaolinite, and other minerals. Silica is dissolved from practically all rocks. Its state in natural waters is generally considered to be that of finely divided or colloidal suspended matter rather than a dissolved solid.

Silica presents a problem in industrial water supplies. Boiler feed waters containing excessive amounts of silica have resulted in deposits in the tubes of heaters and on steam-turbine blades. Silica presents no particular problem in drinking water and thus no permissible concentrations have been established.

Iron

Iron is dissolved from many rocks and soils. On exposure to air, water containing iron will become reddish in color due to the oxidation of the iron to insoluble ferric hydroxide which readily settles out of solution. For this reason, free-flowing surface waters usually contain small amounts of iron in solution.

Ground waters, on the other hand, usually contain higher amounts of iron. However, on exposure to air these waters also become turbid with ferric hydroxide which settles out. This results in reddish-brown stains on porcelain fixtures and in laundry washed in water containing iron.

The U. S. Public Health Service Drinking Water Standards recommends a limit of 0.3 ppm for iron. This limit is based not upon physiological considerations but upon economic, esthetic, and taste considerations as previously discussed.

Calcium

Elemental calcium does not occur in nature because it is readily oxidized in air. Calcium salts and ions, however, are one of the most universally characteristic constituents of natural waters. Calcium is dissolved from almost all rocks and soils, especially from limestone, dolomite and gypsum.

Calcium, together with magnesium, is the constituent which produces most hardness in water. Both contribute to the formation of boiler scale and deposits in hot-water heaters and pipes in water systems.

The U. S. Public Health Service has made no recommendation concerning the concentration of calcium in drinking water.

Magnesium

Like calcium, magnesium is not found in its elemental state in nature. This is due to its high chemical activity. Practically all salts of magnesium are highly soluble in water. Magnesium is dissolved from many rocks, particularly from dolomite rocks.

The effects of magnesium in water are similar to that of calcium.

Sodium and Potassium

Sodium and potassium, both highly active chemically, are not found in their elemental state in nature. However, their compounds are relatively abundant and are highly soluble in water. Because of their high solubility, they are not readily removed from water by natural processes.

In waters containing low concentrations of sodium and potassium, the two are usually in equal concentrations. However, as the concentrations of the two constituents increase, the porportion of sodium becomes greater.

The presence of high concentrations (50 to 100 ppm) of sodium and potassium in boiler-feed waters may cause foaming and result in operational problems. Although no limit is recommended by the U. S. Public Health Service for drinking waters, investigations have shown that the sodium content of food and water in the range of 200 mg may be deleterious to those suffering from high blood pressure.

Sulfates

Sulfates occur naturally in water; being dissolved from many rocks and soils, especially from gypsum and beds of shale. They may also occur as the final oxidized stage of sulfides and sulfites and thus may be leached in considerable quantities from abandoned coal mines containing iron sulfides. The sulfates of calcium are relatively insoluble whereas sodium and potassium sulfates are highly soluble.

The U. S. Public Health Service Drinking Water Standards recommend that sulfates do not exceed 250 ppm except where a more suitable supply is not available. This limit is based on the apparent laxative effects of sulfates upon new consumers. Sulfates in combination with calcium and magnesium in water results in the formation of hard scale in stream boilers and may increase the cost of softening the water.

Chlorides

Chlorides are found in practically all natural waters. They may be dissolved from rock materials or derived from sea water contamination of underground supplies or from the discharge of irrigation waters and municipal and industrial wastes.

Chlorides in water tend to accelerate corrosion in pipes, boilers, and other fixtures. The U. S. Public Health Service Drinking Water Standards recommend that chlorides do not exceed 250 ppm. This limit is based upon palatability rather than physiological considerations.

Nitrates

Nitrates are the end product of the aerobic stabilization of nitrogenous material and thus their presence in water may indicate pollution by sewage or other organic wastes. Nitrates also occur in percolating ground waters as a result of excessive application of fertilizer.

The nitrate concentration of surface waters are usually low due to their assimilation by all types of plants. However, in deep ground waters, where this action is not possible, high concentrations of nitrates can be found.

Infant cyanosis or methemoglobinemia may be caused by high nitrate concentrations in water used for preparing feeding formulae. Most cases of this disease have been associated with the use of water containing 50 ppm or more of nitrate nitrogen although some cases have been reported where concentrations have been as low as 10 ppm. The Public Health Service Drinking Water Standards has recommended 45 ppm as the upper limit for nitrate concentrations and has stated that in those areas where this concentration is exceeded the public should be warned of the potential dangers of using the water for infant feeding.

Fluoride

Fluoride occurs in nature as fluorspar in sedimentary rocks, and as cryolite in igneous rocks. Because of their source, they are seldom found in appreciable quantities in natural surface waters but may occur in high concentrations in ground waters.

Present investigations and results of long-term studies have indicated that the maintenance of 0.8 to 1.0 ppm of fluoride ion in drinking water is an aid to the reduction of dental decay, especially among children.

The U. S. Public Health Service Drinking Water Standards recommends as an upper limit for the natural fluoride concentration in water 0.8 to 1.7 ppm depending upon the amount of water consumed. These upper limits also apply where fluoridation of municipal water supplies is practiced.

Hydrogen Ion Concentration (pH)

The hydrogen ion concentration in water is represented by a number which is the negative logarithm of the hydrogen ion concentration in moles per liter of solution. This number is called the pH and ranges from 0 to 14 with a pH of 7 said to be neutral. Decreasing values of Ph below 7 denote increasing acidity of a water and increasing values of pH above 7 denote increasing alkalinity.

Although the U. S. Public Health Service Drinking Water Standards sets no limits for pH in raw waters used as sources for domestic purposes, the hydrogen-ion concentration is important in that it affects taste, corrosion potential, efficiency of chlorination, treatment processes such as coagulation, and industrial applications.

Alkalinity

Alkalinity in water is usually caused by the presence of carbonates, bicarbonates, and hydroxides and sometimes by borates, silicates, and phosphates. In natural waters, the alkalinity consists principally of calcium and magnesium bicarbonates.

Alkalinity in water is generally associated with high pH values, hardness, and dissolved solids making highly alkaline waters undesirable for municipal and many industrial uses.

Hardness

Hardness in water is caused principally by the presence of calcium and magnesium and to a lesser extent by iron, manganese and aluminum.

The principal disadvantage of a hard water is the precipitation of soap by the calcium and magnesium salts thus increasing the amount of soap required to produce a lather. Until recently, hardness had been measured by determining the amount of a standard soap solution required to produce a lather but this cumbersome test is being superseded by the "versenate" test for hardness.

Salts causing hardness in water are generally referred to as carbonates and non-carbonates. Included in the group causing carbonate hardnesss are the carbonates and bicarbonates, usually of calcium and magnesium. Non-carbonate hardness is due primarily to calcium and magnesium sulfates, chlorides and nitrates.

In addition to increased soap consumption, hardness in water is objectionable because it results in formation of scale in boilers, hot water heaters, pipes and utensils; formation of scum in homes, laundries, and textile mills; and interference with other industrial uses.

PHYSICAL CHARACTERISTICS

Color

Color in water may be due to natural sources such as iron compounds, peat, leachings of decaying organic matter, algae, protozoa, etc. or it can result from inorganic and organic waste discharges.

In water analyses, true color is measured after the suspended material has been removed from the sample leaving only the substances in solution. The platinum - colbalt standard is used to measure color with one unit of color being equal to one ppm of platinum in water.

The U. S. Public Health Service Drinking Water Standards has set a limit of 15 for color in filtered water.

Turbidity

Turbidity in natural waters is due to the presence of suspended material such as clay, silt, finely divided organic matter and microscopic organisms.

The turbidity of a water sample is a measure of the extent to which the intensity of light passing through is scattered or absorbed by the suspended matter. The term "turbidity" and "suspended matter" are not synonymous, however, as turbidity is but an expression of only one effect of suspended solids upon the character of water.

The U. S. Public Health Service Drinking Water Standards has recommended a limit of 5 for turbidity in filtered water.

BACTERIOLOGICAL (SANITARY) CHARACTERISTICS

Coliform Organisms

The presence of coliform organisms in a water is regarded as an indication of sewage pollution and has served for many years as a basis for water-quality criteria. The coliform group includes all the aerobic and facultative anaerobic Gram-negative nonspore-forming bacilli which ferment lactose with gas formation within 48 hours at 35°C.

Although most of the coliform group are not disease-producing bacteria, they are used to determine the bacteriological quality of a water for several reasons. First, the direct isolation of specific disease-producing bacteria is much too slow and difficult for routine analyses. Secondly, the coliform group includes the E. coli strains which are usually of fecal origin and thus good indicators of sewage pollution.

The method employed in the measurement of the coliform group has been the dilution tube technique although the use of the membrane filter is becoming more popular. In the analyses given in this report, however, the coliform results were obtained using the dilution method and the results are given as the Most Probable Number of coliform organisms present in the sample.

The U. S. Public Health Service Drinking Water Standards has set limits for the presence of coliforms in finished water. These limits are dependent upon the frequency of sampling and volume of sample used, and since they apply to finished water will not be discussed here.

Dissolved Oxygen

The significance of the presence of dissolved oxygen in water is primarily related to the sanitary quality of the water. Its importance in this respect is only in surface waters where its presence at saturation levels is usually indicative of an organically unpolluted water. Because dissolved oxygen in water is diffused from the atmosphere in which it is in contact, its absence in a ground water is not of sanitary significance.

In surface waters receiving municipal and industrial waste discharges, organic matter in runoff, or leachings of organic matter such as would be expected from swampy areas, the level of dissolved oxygen is usually depressed. A depressed level of dissolved oxygen is significant in that it indicates a source of organic pollution, either natural or artificial and usually corresponding deterioration of the water quality can be expected. The major problem involved in streams of low dissolved oxygen is its effect upon fish and other aquatic life. Since oxygen is essential to all aerobic forms of life, its depletion gives rise to odoriferous products of anaerobic decomposition, a condition which usually renders the water unusable for many purposes.

Biochemical Oxygen Demand (BOD)

The biochemical oxygen demand (BOD) of a water is a measure of the oxygen required during stabilization of the decomposable organic matter present by aerobic bacterial action. Because complete stabilization requires more than 100 days, it is usually measured at the end of five days and reported as a five-day demand.

The five-day BOD value alone means very little for in itself it is not a specific water quality characteristic. Its importance is related to its diminishing effect upon the dissolved oxygen level which in turn affects fish life and other beneficial uses. Like dissolved oxygen, its significance relates only to surface waters and high levels of BOD can usually be associated with organic pollution of a stream. However, where reaeration, dilution or photosynthetic action offset or minimize this oxygen depletion, BOD does not interfere with the reasonable uses of water.

SECTION I

EXISTING DATA

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SAVANNAH BASIN

Surface Waters

The availability of data on surface water quality in the Savannah River was good especially in the upper portion of the basin above the headwaters of the Clark Hill Reservoir and between Augusta and the Clark Hill Dam. Tables 1-1 and 1-3 and Figure 1-1 show the type and coverage of the surface water data.

Data were available at thirty-nine stations within the basin. Twenty-six of these stations were located above the headwaters of Clark Hill Reservoir; eight between Clark Hill Dam and Augusta; and five in the lower portion of the basin.

As shown in Tables 1-1 and 1-3, data were available on the physical, chemical, bacteriological (sanitary), and radiological quality of the surface waters. Data at one station in this basin were collected as part of the Water Quality Field Study and can be found in that section of the report. Data on the radiological quality of the Savannah River are shown in Table 1-3. This information was obtained from the reports of the Atomic Energy Commission and the U. S. Public Health Service.

Most of the surface water data for the Savannah Basin were collected in the 1950's and thus probably represent current conditions. The data presented were obtained mainly from unpublished records of the U. S. Public Health Service's Robert A. Taft Sanitary Engineering Center, the South Carolina Research, Planning, and Development Board and the South Carolina Water Pollution Control Authority.

The average dissolved oxygen reported at all the stations consistently exceeded 85 percent of saturation. The coliform concentrations varied considerably throughout the basin with a maximum of 110,000 MPN per ml and a minimum of 1 MPN per ml being reported. The higher coliform counts were generally reported in the upper portion of the basin above the headwaters of the Clark Hill Reservoir. The hardness reported in the upper portion of the basin ranged from 8 to 32 ppm, whereas the hardness reported in the stations below Clark Hill Dam ranged from 12 to 62 ppm. The total dissolved solids reported above Clark Hill Dam ranged from 19 to 51 ppm and below the Dam from 34 to 122 ppm. The color reported at stations above the Dam ranged from 3 to 60 whereas below the Dam color ranged from 8 to 240. The calcium and other mineral constituents reported at stations above the Dam were less than those reported below. As the stations located above the Clark Hill Dam were also located above the fall line, the difference in chemical quality may be due to ground water flow into the streams.

Ground Water

The availability of ground water quality data in the Savannah Basin above the fall line was good. Table 1-2 and Figure 1-2 show the type and coverage of the ground water data.

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Data were available at sixty-two stations within the basin; only fourteen of which were located below the fall line. The distribution of the stations above the fall line was good except in the extreme upper and lower portions. Most of the data for the Georgia portion of the basin were collected in the late 1940's and 1950's whereas that in the South Carolina portion were collected mostly in the late 1930's and 1940's. The data presented were obtained mainly from reports of the South Carolina Planning, Research, and Development Board, and the U. S. Geological Survey and records of private laboratories and industrial firms.

The analyses presented for the ground waters of the crystalline rock aquifer varied considerably. Because of this variation, individual analyses were given for this basin. Total dissolved solids ranged from 83 to 665 ppm and hardness ranged from 6 to 186 ppm. Iron concentrations reported ranged from 0.0 to 9.60 ppm. One station of unknown aquifer reported an iron concentration of 25.0 ppm. Other chemical constituents reported reflected this variable chemical quality.

The analyses presented for the waters of the sand aquifers were also varied. Because of this variability and the limited number of analyses reported, discussion of the data does not seem warranted.

From the several analyses of water obtained from the limestone aquifer, their quality appeared more consistent. Total dissolved solids ranged from 97 to 372 ppm. However, the next lowest value reported was 139 ppm. The iron concentration reported did not exceed 0.3 ppm at any station. Hardness ranged from 90 to 191 ppm and several high chloride and sulfate concentrations were reported.

TABLE 1-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

Sampling Station							Dissolved Oxygen																		
	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Parts per Million	Percent Saturation	5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness ($CaCO_3$)	Color Value	Turbidity
Tugaloo River, at U. S. Highway 123	309-T31	10-59	5	Avg.	6,225	16.8	8.8	88.0	0.3	49							8		0.8		6.8				
				Max.	14,400	18.5	9.4	94.0	0.4	350							9		1.1		7.1				
				Min.	270	15.5	8.5	87.0	0.2	14							5		0.5		6.2				
		2-60	3	Avg.	4,600	5.0	11.7	91.3	0.4	14							12		1.4		7.0				
Chauga River, near Westminister, S.C.	309-T18 -31-1	3-55	2	Avg.	136						30	11	0.03	2.5	1.6	3.0	16*	1.7	1.5	0.5	7.1	0.05	11	11	
		5-55																							
		11-55	3	Avg.	61						31	12	0.07	2.4	0.9	3.2	17*	1.0	0.7	0.4	6.6	0.0	9	19	
		to		Max.	90						32	13	0.08	2.6	1.0	3.2	18	1.6	1.0	0.5	6.7	0.0	10	30	
		9-56		Min.	40						28	11	0.07	2.1	0.8	3.1	16	0.6	0.5	0.4	6.5	0.0	8	12	
		5-57	1		119						31	13	0.36	2.8	0.1	3.0	13*	0.4	2.0	0.3	6.6	0.0	8	10	
Tugaloo River, at Ga. Highway 59	309-T13	10-59	5	Avg.	9,940	19.5	8.3	89.1	0.8	130							10		1.3		7.0				
				Max.	21,000	22.0	8.7	92.0	2.0	1,600							12		1.6		7.1				
				Min.	500	18.0	7.8	84.0	0.4	33							9		1.1		6.9				
		2-60	3	Avg.	5,370	6.0	11.5	92.0	0.4	33							13		1.4		7.2				
Tugaloo River, at Andersonville Ferry	309-T8	11-55	8	Avg.	1,340	11.5	10.8	97.0	0.7	43			0.26				15		1.7		7.1			16	
				Max.	3,100	16.0	12.3	102.4	1.0	93			0.50				18		3.0		7.3			27	
				Min.	300	6.0	9.2	92.5	0.4	1			0.12				10		1.0		6.7			10	
Keowee River, near Jocassee, S. C.	309-S24 -40	5-57	1		331						19	10	0.01	2.4	0.2	1.7	8*	0.4	2.2	0.7	6.2	0.0	7	15	
Twelvemile Creek, near Pickens, S. C.	309-S24 -7	2-57	1								32	14	0.0	2.4	0.5	3.3	14*	0.9	1.6	1.3	6.6	0.1	9	8	
Cane Creek, near West Union, S. C.	309-S24-5-3-13	5-57	1		43						36	15	0.12	1.6	1.2	3.9	15*	2.1	1.8	0.5	6.1	0.0	9	10	
Little River, near Mt. Carmel, S. C.	309-S24 -5-2	10-53	11	Avg.	277						55	17	0.06	4.9	1.7	6.3	29*	3.5	3.0	0.6	6.7	0.10	19	13	
		to		Max.	1,520						64	23	0.18	6.5	2.5	7.6	38	5.3	3.8	1.2	7.1	0.30	24	25	
		8-54		Min.	16						38	10	0.0	2.5	0.7	4.3	13	2.1	2.5	0.0	6.1	0.0	9	3	
Keowee River, near Newry, S. C.	309-S24 -2	10-53	12	Avg.	1,777						25	10	0.04	1.8	0.6	2.7	11*	1.4	1.1	0.4	6.3	0.05	7	9	
		to		Max.	11,100						31	15	0.08	2.4	1.1	3.9	15	2.5	1.5	0.7	6.6	0.20	8	21	
		9-54		Min.	203						19	6	0.0	1.1	0.4	1.4	5	0.7	0.8	0.1	5.6	0.0	5	3	
		11-55	10	Avg.	388	9.8	10.5	92.1	1.2	93							14		0.9		7.1			28	
				Max.	598	15.5	12.8	98.9	1.8	240							17		0.0		7.3				
				Min.	278	3.5	9.0	80.7	0.8	4							7		1.5		6.6				
		10-59	5	Avg.	1,910	21.4	8.0	89.0	0.7	110							11		1.2		6.9				
				Max.	7,040	23.0	8.6	98.0	1.5	790							14		2.0		7.2				
				Min.	356	19.5	6.4	73.0	0.1	33							7		0.5		6.4				
		2-60	3	Avg.	2,650	7.1	11.4	94.0	0.3	5							11		1.3		7.0				

(8/1/61)

TABLE 1-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness (CaCO3)	Color Value	Turbidity
							Parts per Million	Percent Saturation																	
Seneca River, at U. S. Highway 76 above Clemson, S. C.	309-S22	11-55	9	Avg.	421	9.7	10.6	91.8	1.5	75							14		1.1		7.1			29	
				Max.	580	16.5	11.9	97.8	3.4	460							17		2.5		7.7			42	
				Min.	313	7.0	9.2	87.1	0.8	9							9		0.0		6.5			23	
		10-59	5	Avg.	2,230	21.4	7.9	88.7	0.8	240							13		1.2		6.9				
				Max.	7,292	23.0	8.4	93.0	1.3	2,400							16		1.5		7.0				
				Min.	500	20.0	7.6	83.0	0.0	79							8		0.8		6.8				
		2-60	3	Avg.	3,190	6.0	11.8	94.0	1.1	28							13		1.9		7.4				
Seneca River, at Clemson, S. C.	309-S21	11-52	1		462						32	14	0.04	2.4	1.0	3.3	17*	1.0	1.5	0.2	6.3	0.0	10	4	
		6-53	1		736						31	12	0.03	1.6	1.2	3.8	15*	0.9	2.0	1.1	6.5	0.1	9	2	
		11-55	1		338						32	13	0.10	2.4	1.1	3.9	20*	0.5	1.0	0.5	6.5	0.0	11	22	
		9-56	1		310						29	12	0.05	2.3	0.5	3.4	16*	1.1	1.0	0.6	6.5	0.0	8	10	
Conneross Creek, at Richland, S. C.	309-S13 -23	4-56	2	Avg.	46						44	14	0.10	2.9	1.1	6.3	21*	0.9	3.9	2.3	6.6	0.1	12	19	
		5-56																							
		5-57	1		47						51	15	0.17	3.2	0.7	6.7	20*	2.6	4.3	2.3	6.0	0.0	11	20	
Seneca River, at S. C. Highway 80	309-S7	11-55	8	Avg.	614	10.7	10.0	89.1	1.8	195			0.54				22		2.4		7.4			36	
				Max.	788	16.0	12.3	106.1	3.2	1,100			0.72				25		3.5		8.1			44	
				Min.	477	4.0	8.7	81.6	0.4	43			0.34				19		1.5		7.2			25	
		9-59	5	Avg.	1,220	21.7	6.8	75.9	1.1	790							18		2.8		7.1				
				Max.	2,170	23.0	7.3	82.0	2.1	1,300							22		3.4		7.4				
				Min.	882	19.5	6.3	72.0	0.2	170							11		2.3		6.9				
		2-60	3	Avg.	16,800	6.8	11.2	92.0	1.4	140							16		2.6		7.1				
Lightwood Log Creek, at Hartwell, Ga.	306-9	9-56	1										0.0	2.7			7	3.3	1.8		6.9		14		
		9-57	1										0.0	6.8			18	8.2	2.4		7.4		26		
		7-58	1										0.0	7.5			10	6.6	1.8		7.1		27		
		2-60	1										0.0	6.8			9	6.6	1.2		7.1		21		
Lightwood Log Creek, near mouth (Ga)	306-1	11-55	8	Avg.	23	12.0	10.4	95.4	0.8	9							12		1.9		7.1		27		
				Max.	28	18.0	13.4	104.3	1.9	43							14		2.5		7.7		32		
				Min.	18	5.0	8.6	90.2	0.2	2							11		1.0		6.8		20		
		10-59	5	Avg.	28	19.1	8.7	95.3	0.8	330							11		2.1		6.8				
				Max.	29	22.5	9.3	104.0	1.8	790							13		2.4		7.0				
				Min.	27	17.5	8.0	88.0	0.2	46							10		2.0		6.7				
Savannah River, at U. S. Highway 29	306	11-15 to 12-55	8	Avg.	1,680	12.3	10.2	94.5	1.6	7,300			0.55				18		2.3		7.2			26	
				Max.	2,350	18.0	12.1	98.2	4.8	24,000			1.08				23		3.8		7.4			60	
				Min.	810	6.5	9.0	88.7	0.4	430			0.14				13		1.0		7.0			10	
Savannah River, at S. C. Highway 184 near Iva, S. C.	301	11-55 to 12-55	9	Avg.	1,820	12.1	10.9	99.3	1.3	6,100			0.42				19		2.4		7.2			25	
				Max.	2,670	17.5	12.9	113.8	2.0	46,000			0.76				25		3.4		7.4			37	
				Min.	845	6.0	9.0	93.4	1.0	750			0.20				15		0.0		6.9			17	
		5-57	1		3,180																				
		2-60	3	Avg.	6,130	8.5	11.4	96.0	0.7	49	49	12	0.02	2.0	0.8	5.8	15*	3.5	3.5	0.7	6.0	0.0	8	10	
																	12		1.8		7.0				

(8/1/61)

TABLE 1-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen Parts per Million	Dissolved Oxygen Percent Saturation	5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness ($CaCO_3$)	Color Value	Turbidity
Big Generostee Creek, near Starr, S. C.	300-10	5-57	1		52						50	16	0.07	3.2	1.0	6.8	18*	1.8	4.5	3.7	6.0	0.2	12	5	
Big Generostee Creek, near mouth (S. C.)	301-1	11-55	8	Avg.	31	10.5	8.0	72.8	5.0	1,100							27		5.9		6.8			39	
				Max.	37	15.5	11.2	88.2	7.6	15,000							37		8.0		7.2			48	
				Min.	27	5.5	5.7	56.2	2.5	23							20		4.5		6.0			27	
		10-59	5	Avg.	52	12.6	7.8	72.8	2.2	4,900							21		5.7		7.1				
				Max.	61	14.0	8.2	76.0	3.8	7,900							23		9.0		7.2				
				Min.	46	11.0	7.2	69.0	1.1	22,000							19		4.1		7.1				
Savannah River, at S. C. Highway 181	297	11-55	9	Avg.	1,970	11.2	10.4	93.3	1.3	10,000			0.51				19		1.8		7.1			28	
		to		Max.	2,830	16.0	12.6	97.9	1.8	110,000			0.82				26		2.5		7.4			38	
		12-55		Min.	790	3.0	8.7	87.4	0.4	4,300			0.26				15		0.5		6.7			21	
Savannah River, at Calhoun Falls, S. C.	284	11-55	9	Avg.	1,750	11.8	10.6	97.1	2.0	3,500			0.45				20		2.1		7.3			24	
		to		Max.	2,570	19.0	12.8	105.2	3.3	46,000			1.06				24		3.5		7.7			42	
		12-55		Min.	1,210	7.0	9.2	93.2	0.8	230			0.26				17		1.0		7.1			15	
		3-56 5-56	2	Avg.	5,460						37	10	0.01	2.7	0.7	4.2	15*	2.1	1.9	1.0	6.5	0.1	10	14	
		10-59	5	Avg.	5,400	15.8	9.1	91.2	1.4	79							21		2.7		7.3				
				Max.	5,740	17.0	9.6	98.0	1.9	79							22		3.0		7.4				
				Min.	5,180	15.0	8.6	86.0	0.9	17							20		2.6		7.2				
		2-60	3	Avg.	9,130	6.7	11.3	91.6	0.9	79							18		2.8		7.1				
Rocky River, at Anderson, S. C,	282-31	2-51	1								48	17.0	0.11	2.2	0.8	8.0	22*	3.0	2.8	1.0	7.0	0.1	9	27	
Rocky River, near mouth (S. C.)	282-1	11-55	8	Avg.	45	12.1	10.6	97.6	1.7	23							27		3.0		7.4			15	
				Max.	76	19.8	11.8	102.4	2.4	24							41		3.8		7.6			24	
				Min.	24	7.0	9.1	96.0	0.7	1							24		1.5		7.2			7	
		10-59	3	Avg.	291	16.2	10.1	101.7	0.7	17							20		3.9		7.3				
Beaver Dam Creek, at Elberton, Ga.	281-14	10-38	1								33	12	0.02	2.2	1.0	3.9	16*	1.9	1.9	0.4		0.0	10	4	
		11-56	1										0.0	8.2			24	4.9	1.8		8.6		26		
		8-57	1										0.0	10.3			19	6.6	3.6		8.7		27		
		6-58	1										0.0	7.5			17	1.6	3.0		8.8		19		
		3-60	1										0.0	7.5			5	1.6	1.8		7.3		24		
Beaver Dam Creek, near mouth (Ga.)	281-1	11-55	7	Avg.	34	10.7	10.7	94.5	1.7	23							20		8.2		7.2			40	
				Max.	46	19.0	12.1	97.1	4.4	240							27		11.0		7.7			50	
				Min.	23	6.0	8.9	88.9	0.6	9							10		5.5		7.1			29	
		10-59	5	Avg.	55	12.7	9.7	91.4	0.6	140							22		5.5		7.4				
				Max.	65	14.0	10.2	94.0	0.7	490							23		10.1		7.4				
(8/1/61)				Min.	44	12.0	8.8	85.0	0.5	79							21		2.7		7.4				
		2-60	3	Avg.	99	8.8	10.5	89.3	0.9	79							18		3.9		7.1				

TABLE 1-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen Parts per Million	Dissolved Oxygen Percent Saturation	5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness (CaCO3)	Color Value	Turbidity
Savannah River, at Woodlawn Landing	231	8-51	3	Avg.	3,413	27.7	7.3	91.6	0.37	6							14		3.6		7.3			18	71
		6-55	11	Avg.	5,215	19.5	5.7	61.6	0.15	2							18		2.9		6.8			29	9
		to		Max.	5,460	20.0	6.2	68.0	0.26	9							20		7.2		7.0			32	15
		7-55		Min.	4,980	18.0	5.0	55.0	0.0	7							16		1.1		6.6			24	6
Beaver Dam Lake, at Washington, Ga.		10-36	1								86	32	0.22	7.8	2.9	8.8	54*	1.3	3.4	0.1		0.0	31	12	
		11-56	1										0.0	20.4			32	1.6	4.8		7.2		61		
		8-57	1										0.0	23.2			43	6.6	6.7		8.6		67		
		6-58	1										0.0	18.5			29	4.9	3.0		7.5		48		
		2-60	1										0.0	13.0			14	29.6	3.0		7.3		41		
Uary Pond, at Thomson, Ga.		11-56	1										0.0	14.4			12	9.9	2.4		7.9		39		
		8-57	1										0.0	14.4			14	4.9	3.6		8.5		36		
		6-58	1										0.0	11.0			14	6.6	5.5		7.0		27		
Savannah River, at North Augusta, S. C.	219	10-58	49	Avg.		17.3	8.8										16		5.0		7.0		13		18
		to		Max.		26.6	9.5										21		6.0		7.1		20		55
		9-59		Min.		7.7	8.2										12		4.0		6.4		9		5
Savannah River, at Augusta, Ga.	218	1938		Avg.							41.0	11	0.05	4.3	1.3	4.6	22*	3.0	2.4	0.34		0.0	16.0	13	
		4-51	1								37	12	0.10	3.0	1.3	3.6	17*	2.8	2.6	0.3		0.0	13		
		7-51	13	Avg.	3,373	25.6	7.6	91.4	0.34	4							19		3.1		7.5			24	42
		to		Max.	4,800	30.0	8.8	95.0	0.47	24							20		4.2		7.6			40	65
		10-51		Min.	1,960	19.0	6.7	88.0	0.19	1							17		2.2		7.4			10	28
		12-51	10	Avg.	10,850	9.8	11.5	100.0	0.78	14							12		3.3		7.0			110	132
		to		Max.	37,900	14.0	12.5	106.0	2.10	240							16		3.9		7.3			160	375
		3-52		Min.	4,840	6.0	10.2	98.0	0.31	1							7		2.6		6.7			28	8
		1951-52	2	Avg.							68.6	25.1	4.0	2.7	1.4	3.5		4.9	3.4	0.38		0.08		30	10
		6-55	11	Avg.	5,215	22.0	8.6	96.9	0.26	8							18		2.1		7.2			38	15
		to		Max.	5,460	22.0	9.3	103.0	0.38	24							19		3.6		7.4			23	7
		7-55		Min.	4,980	21.0	7.9	90.0	0.14	2							17		0.8		7.0			24	60
		8-56	1										0.0	6.9			17	1.6	1.2		7.1		21		
		8-57	1										0.3	8.9			17	8.2	3.6		7.3		26		
		6-58	1										0.0	8.2			17	3.2	6.1		6.7		29		
		8-59	1										0.0	7.5			15	0.0	2.4		7.5		24		
Savannah River, below Savannah Bluff Lock	202.9	8-51	8	Avg.	2,530	25.0	8.1	96.7	0.47	235							19		3.8		7.4			10	25
		to		Max.	4,800	29.0	8.9	100.0	0.70	930							24		4.6		7.7			110	108
		10-51		Min.	1,890	19.0	7.4	95.0	0.30	15							17		3.3		7.2			160	205
		12-51	7	Avg.	13,100	10.4	11.1	98.6	0.76	230							13		3.5		7.0			88	36
		to		Max.	38,600	12.0	11.3	101.0	1.40	430							15		4.3		7.3				
		3-52		Min.	5,040	9.0	10.8	97.0	0.32	23							9		3.0		6.8				
		1951-52	5	Avg.							54.9	16.1	1.23	3.7	1.2	3.8		4.9	3.9	0.78		0.14			
		6-55	11	Avg.	5,215	23.0	7.7	88.1	0.52	240							19		2.3		7.1			30	12
		to		Max.	5,460	24.0	7.9	91.0	0.57	240							20		4.2		7.3			32	15
		7-55		Min.	4,980	21.0	7.4	82.0	[illegible]	43							18		1.5		7.0			24	7

(8/1/61)

TABLE 1-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen Parts per Million	Dissolved Oxygen Percent Saturation	5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Floride	Hardness ($CaCO_3$)	Color Value	Turbidity
Savannah River, above AEC Plant	197.0	8-51	14	Avg.	3,130	26.1	7.3	89.0	0.72	840							19		3.6		7.3			29	54
		10-51		Max.	4,800	30.0	8.5	95.0	1.30	2,400							26		4.7		7.6			50	160
				Min.	1,830	20.0	6.6	86.0	0.31	430							18		3.1		7.1			10	25
		12-51	10	Avg.	11,050	10.3	10.9	96.5	0.83	220							15		4.0		7.3			102	102
		to		Max.	38,600	13.0	12.0	100.0	1.50	930							15		4.0		7.3			152	290
		3-52		Min.	5,080	6.0	9.9	93.0	0.44	9							6		3.1	0.90	6.3			31	27
		1951-52	4	Avg.							60.6	18.1	1.5	3.7	1.3	3.8		3.5	4.0			0.17			
		6-55	11	Avg.	5,215	22.9	8.4	96.8	0.75	240							19		2.1		7.1			31	13
		to		Max.	5,460	24.0	8.7	100.0	0.80	390							20		2.9		7.3			34	15
		7-55		Min.	4,980	21.0	8.1	91.0	0.70	91							17		1.7		7.0			29	7
Brier Creek, at	106-40																								
Waynesboro, Ga.		1-38	1								37	9	0.12	4.8	0.9	3.4	20*	1.7	3.2	0.3		0.1	16	15	
		8-56	1										0.0	16.4			21	4.7	3.0		8.5		43		
		8-57	1										0.0	14.4			26	20.2	2.4		8.6		62		
		5-58	1										0.0	17.8			22	6.2	3.0		8.2		50		
		11-59	1										0.0	13.0			24	10.9	5.5		7.7		34		
Savannah River, at AEC Plant	172.0	8-51	9	Avg.	3,025	25.8	7.2	88.4	0.64	930							19		3.7		7.4			20	55
		to		Max.	4,260	30.0	7.6	94.0	1.20	2,400							21		4.8		7.7			35	195
		10-51		Min.	1,830	21.0	6.2	84.0	0.28	93							16		3.3		7.2			10	25
		11-51	10	Avg.	11,660	10.2	10.7	94.6	0.78	190							19		3.5		7.0			99	99
		to		Max.	33,200	14.0	12.0	102.0	1.00	2,100							81		4.1		7.7			240	245
		4-52		Min.	4,260	6.0	8.6	82.0	0.53	3							7		2.9		6.6			30	33
		1951-52	4	Avg.							74.8	15.3	1.79	3.2	1.0	4.4		5.0	3.3	1.13		0.12			
		6-55	11	Avg.	5,590	23.4	7.9	92.4	0.42	430							18		2.2		7.1			30	15
		to		Max.	6,060	25.0	8.1	95.0	0.55	2,400							20		3.1		7.3			35	20
		7-55		Min.	5,220	22.0	7.8	90.0	0.31	43							17		1.7		7.0			24	10
Savannah River, near Clyo, Ga.	70	5-38	36	Avg.	11,240	19.5					41	11	0.05	4.3	1.3	4.6	22*	3.0	2.4	0.3		0.0	16	13	
		to		Max.	51,590	30.0					50	16	0.12	5.3	1.7	5.8	29	4.8	3.0	0.7		0.0	20	44	
		5-39		Min.	3,841	8.9					34	7	0.02	3.2	1.0	3.2	14	1.7	1.6	0.1		0.0	12	8	
Savannah River, near Stillwell	52.0	8-51	8	Avg.	4,380	24.7	7.4	89.9	0.30	68							23		5.2		7.5			22	69
		to		Max.	6,260	30.0	8.3	93.0	0.64	460							45		9.3		7.7			34	122
		10-51		Min.	3,140	21.0	6.6	85.0	0.05	9							19		3.3		7.3			15	40
		11-51	6	Avg.	14,485	14.3	8.9	85.6	0.84	26							18		10.5		7.2			93	54
		to		Max.	36,500	21.0	9.8	95.0	1.90	460							23		28.0		7.6			160	75
		4-52		Min.	4,770	10.0	7.8	75.0	0.31	1							14		3.9		6.9			26	32
		1951-52	3	Avg.							44.5	15.6	0.76	4.9	1.1	3.1		5.3	6.3	0.58		0.04			
Savannah River, at Port Wentworth, Ga.		2-58	8	Avg.		20.6	7.1		1.0								23		13.0		6.9		20	36	47
		to		Max.		28.9	10.9		1.4								47		19.0		7.9		27	100	95
		9-58		Min.		6.1	5.2		0.6								15		1.0		6.5		13	16	5
		10-58	23	Avg.		19.0	7.9		1.1		65						25	8.0	11.0		6.9		21	25	69
		to		Max.		26.7	10.7		1.8		122						44	33.0	59.0		7.4		36	70	200
(8/1/61)		9-59		Min.		8.3	6.3		0.6		34						14	2.0	2.0		6.4		16	5	5

TABLE 1-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SAVANNAH BASIN
(All values in ppm as noted)

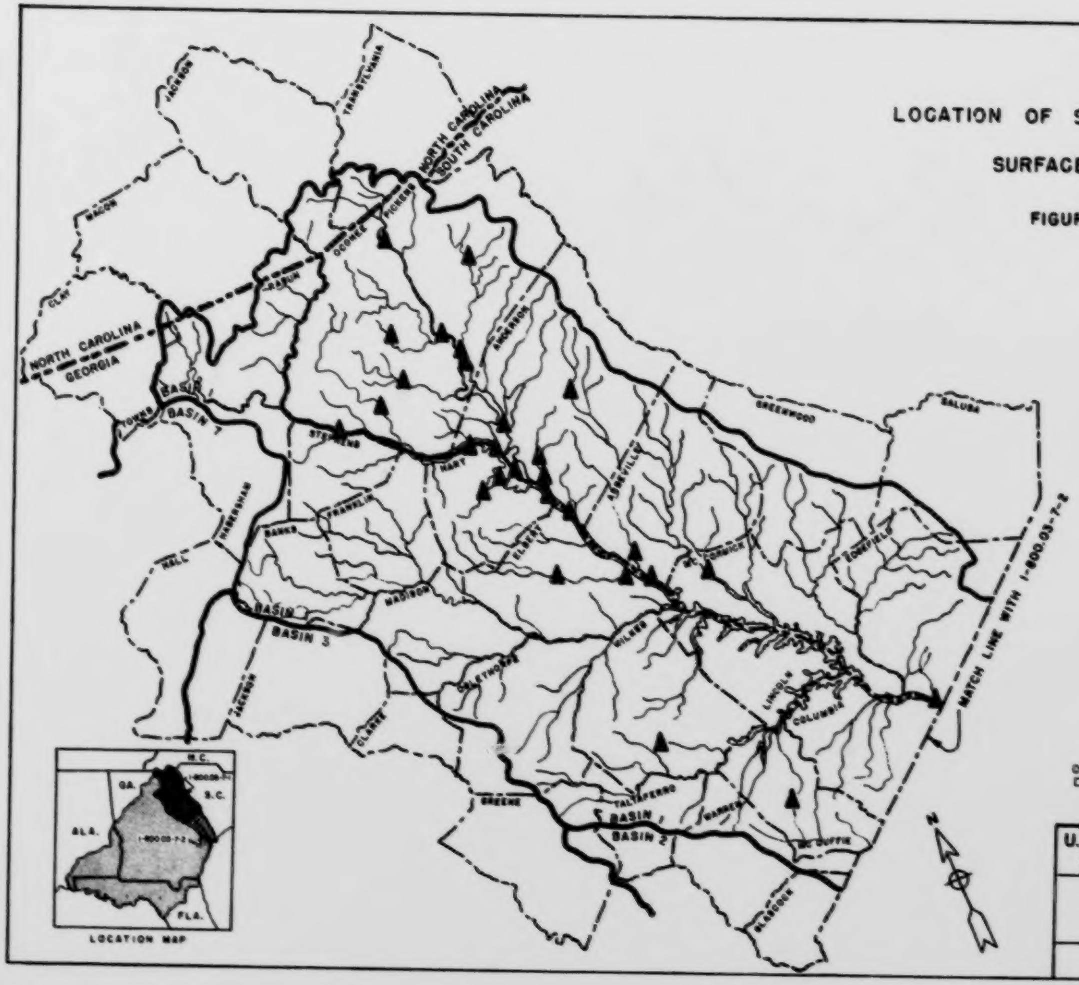
Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness ($CaCO_3$)	Color Value	Turbidity
							Parts per Million	Percent Saturation																	
Abercorn Creek, at Savannah, Ga.	28-3	6-51	1								48	13	0.10	5.2	1.3	5.6	26*	3.5	3.1	0.8	6.5	0.2	18	22	
		7-55	2	Avg.		28.3	5.4	68.4	1.1								21		3.1		7.0			80	37
				Max.		31.0	6.7	85.0	1.3								23		4.0		7.4			130	60
				Min.		27.0	4.2	53.0	1.0								19		2.5		6.6			33	30
		8-56											0.0	9.6			12	9.9	3.6		7.8		34		
		9-57											0.0	16.5			21	11.5	4.2		8.8		50		
		6-58											0.0	11.0			19	0.0	2.4		7.1		33		
		8-59											0.0	11.6			17	1.6	3.6		7.7		34		
		2-61	1								103	6	0.10	8.0	5.0	0.0	16*	0.0	6.0	0.0	6.7		13		
Savannah River, below Savannah	11.0	10-51	13	Avg.	3,900	23.0	3.8	40.7	0.85	152							61		**		7.6			16	42
				Max.	5,310	25.0	5.1	63.0	1.30	430							80				8.0			19	74
				Min.	3,210	21.0	0.0	0.0	0.51	7							46				7.2			11	14
		1951-52	5	Avg.							3,528	13.4	0.26	51.0	114.0	904		214	**	1.95		0.24			
		7-55	7	Avg.	6,046	29.7	0.6	8.6	1.61								51		**		7.2			19	75
				Max.	6,260	30.0	1.6	21.0	1.90								79				7.4			23	1,300
				Min.	5,760	28.0	0.2	2.1	1.30								40				7.0			14	30

* As Bicarbonate

** Average chloride in excess of 2000 ppm due to presence of sea water.

Note: Coliform averages are given as median concentrations.

(8/1/61)


JACKSON
TRANSYLVANIA
NORTH CAROLINA
SOUTH CAROLINA
MACON
CLAY
NORTH CAROLINA
GEORGIA
RABUN
OCONEE
PICKENS
ANDERSON
BASIN
BASIN 7
TOWNS
STEPHENS
HART
HABERSHAM
FRANKLIN
BANKS
HALL
ELBERT
MADISON
ABBEVILLE
GREENWOOD
SALUDA
McCORMICK
EDGEFIELD
BASIN
BASIN 3
JACKSON
OGLETHORPE
WILKES
LINCOLN
COLUMBIA
CLARKE
GREENE
TALIAFERRO
BASIN 1
BASIN 2
WARREN
McDUFFIE
GLASCOCK
MATCH LINE WITH 1-800.03-7-2
N
N.C.
GA.
S.C.
ALA.
1-800.03-7-1
1-800.03-7-2
FLA.
LOCATION MAP

LOCATION OF SAMPLING STATIONS

SURFACE WATER

FIGURE 1-1

SCALE

0 10 20 30 Miles

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SAVANNAH
BASIN NO. 1

AUGUST 1961

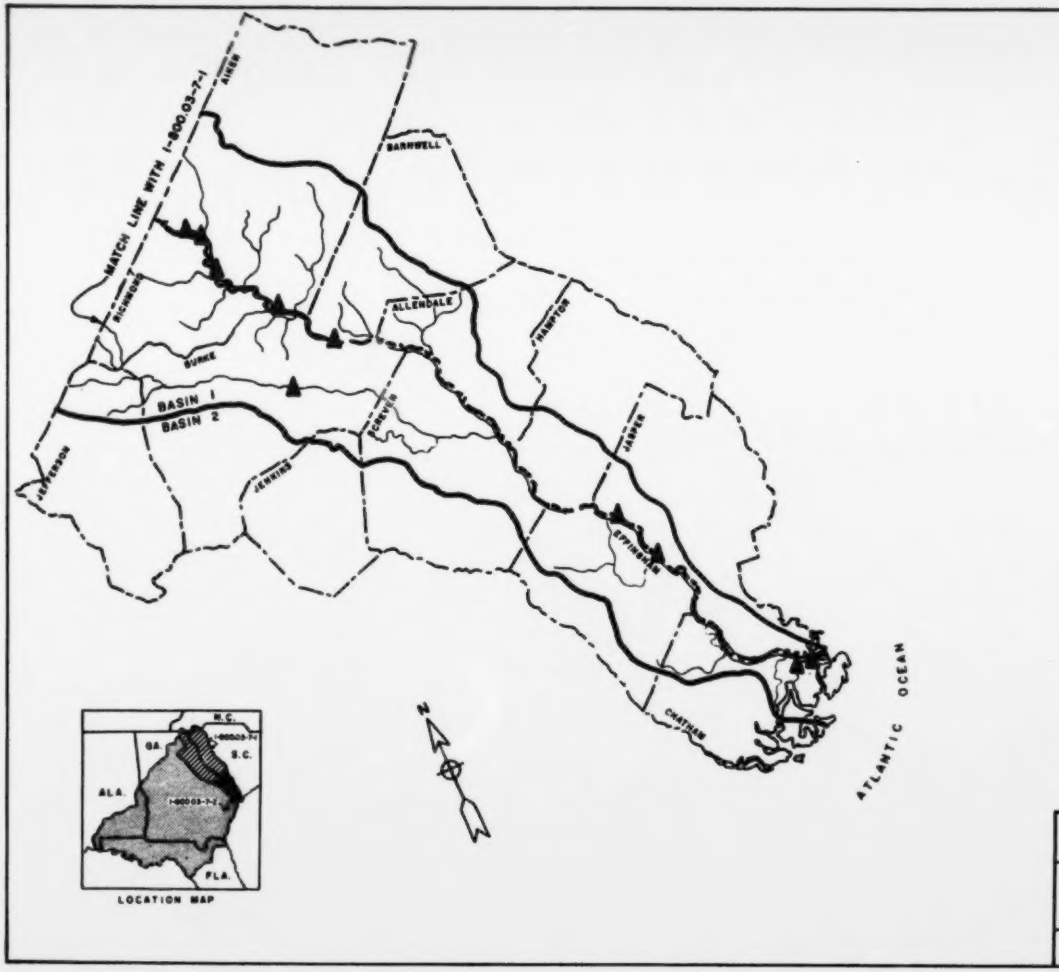

MATCH LINE WITH I-800.03-7-1
AIKEN
BARNWELL
ALLENDALE
HAMPTON
JASPER
RICHMOND
BURKE
SCREVEN
EFFINGHAM
CHATHAM
JEFFERSON
JENKINS
BASIN 1
BASIN 2
ATLANTIC OCEAN
N
N.C.
S.C.
GA.
ALA.
FLA.
I-800.03-7-1
I-800.03-7-2
LOCATION MAP
SCALE
0
10
20
30
Miles

FIGURE I-I
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SAVANNAH
BASIN NO. I

AUGUST 1961

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TABLE 1-2
WATER QUALITY CHARACTERISTICS
GROUND WATER
SAVANNAH BASIN
(All values in ppm except color and pH)

Sampling Station	Date of Analyses	Depth of well	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																	
Rabun County																	
Private Well	10-58	80	Unknown	14	7.2	0.08	0.8	0.1	0.5	5*	0.4	0.0	0.5	5.8	2	0.0	
Stephens County																	
Rock Creek School	11-56		Unknown	114	21.2	0.05	9.2	2.6		61	4.0	5.0		7.5	52	0.0	
Banks County																	
Maysville	1-48		Rock (C)	120	27.0	0.09	6.4	2.7		67	4.0	3.8		6.8	40		
Maysville	10-58	506	Rock (C)	112	23.0	0.0	16.0	3.4	9.8	68*	8.8	4.0	4.1	7.3	54	0.1	
Gillsville School	4-54		Unknown	115	6.0	Tr.	10.0	Tr.	Tr.	59	Tr.	2.0	0.0	7.3	25	0.0	
Lula	2-55		Rock ( )	183	14.0	0.33	11.0	5.3		81	0.4	21.0		6.9	71		
Baldwin	6-58		Rock (C)	110	19.1	0.06	9.8	0.4	2.0	40	5.6	3.0		7.8	45	0.0	
Baldwin	9-58		Rock (C)	168	22.8	0.39	7.2	2.7	3.9	46	7.0	1.0		7.2	44	0.1	
Homer Private Well	5-49		Unknown	112	24.0	0.18	9.4	2.4		57	7.5	4.6		7.4	57		
Franklin County																	
Royston	6-46		Rock (C)	84	7.0	0.15	2.7	1.6		8	0.8	12.2		6.2	19		
Canon	12-49		Rock (C)	151	28.0	0.09	15.5	1.9		82	3.4	3.6		7.9	77		
Franklin Springs College	2-54		Unknown	98	9.0	2.30	2.6	2.2		37	7.2	4.8		6.7	21		
Red Hill School	11-55		Unknown	111	11.0	0.06	8.5	3.5		74	16.2	4.5		7.8	52		
Carnesville School	1-56		Unknown	115	7.0	0.06	1.6	4.4		82	4.0	3.0		7.9	90		
Lavonia	6-60		Rock (C)	655	8.0	0.05				42	250.0	350.0		6.5	104		
Hart County																	
Bowersville Private Well	3-59		Unknown	52	4.0	25.00				31	0.0	0.0		6.5	36		
Madison County																	
Danielsville	12-46		Rock (C)	83	28.0	0.12	3.5	2.0		27	2.0	4.4		6.1	24		
Danielsville Private Well	3-59		Unknown	33	4.0	1.90				30	0.0	0.0		6.5	24		
Comer																	
Mill	6-47		Unknown	119	27.0	0.09	6.3	2.5		33	2.4	12.0		6.6	34		
School	3-55		Unknown	135	2.0	0.15	7.2	2.4		101	5.2	11.4		8.0	42		
Private Well	9-58		Unknown	96	24.6	0.03	5.2	3.9	3.1	49	1.4	1.0		7.2	40	0.3	
Colbert	3-51		Rock (C)	110	24.0	0.12	7.4	2.8		66	2.3	3.4		7.3	45		
Colbert	5-57		Rock (C)	212	28.0	0.34	23.0	0.2	10.0	68	5.0	5.5	0.0	8.3	10	0.1	
Colbert (8/1/61)			Rock (C)	128	20.0	0.40	17.4	Tr.	Tr.	67	0.8	7.0	Tr.	7.3	45	0.1	

TABLE 1-2 (CONT'D)
WATER QUALITY CHARACTERISTICS
GROUND WATER
SAVANNAH BASIN
(All values in ppm except color and pH)

Sampling Station	Date of Analyses	Depth of well	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (Cont'd)																	
Madison Co. (Cont'd)																	
Ila																	
School	8-52		Unknown	129	35.0	0.48	7.4	3.7		57	0.4	5.4		7.2	49		
School	3-55		Unknown	108	8.0	0.72	6.3	3.7		72	5.7	4.8		7.3	44		
Carlton	9-55		Rock (C)	109	23.0	0.30	7.4	0.8		48	0.3	9.5		8.6	36		
Carlton	11-55		Rock (C)	148	29.0	0.12	4.8	3.3		39	0.8	12.0		6.9	35		
Hull	8-59		Rock (C)	83	6.0	9.60				22	0.0	0.0		7.0	23		
Elbert County																	
State Park	10-56		Unknown	369	30.0	0.19	2.9	1.6		178	12.0	49.8		7.5	196	0.1	
Heard Grove School	8-57		Unknown	127	22.1	0.02	4.6	3.8		50	3.2	3.0		7.0	44	0.3	
Bowman	10-58	275	Rock (C)	37	14.0	0.02	1.4	0.6	4.2	8*	1.2	5.8	3.3	5.9	6	0.1	
Bowman	1-59		Rock (C)	29	4.0	4.5				19	0.0	0.0		7.0	30		
Oglethorpe County																	
Lexington	3-56		Rock (C)	346	16.0	Tr.	41.3	0.7		38	135.0	1.4		7.0	186	2.0	
Wilkes County																	
Washington	10-54		Unknown	1,048	6.0	0.12	126.8	7.6		78	513.0	8.8		7.3	607		
Washington	11-54		Unknown	1,264	5.0	0.09	160.0	5.2		65	597.0	9.0		7.3	732		
Tignall	10-58	261	Rock (C)	170	36.0	0.0	30.0	3.2	10.6	76*	32.0	6.0	5.2	6.9	88	0.3	
Columbia County																	
Groveton	1-52		Unknown	125	46.0	0.24	6.3	0.7		51	1.4	5.2		6.7	32		
Harlem School	10-55		Unknown	118	33.0	0.18	3.9	0.8		87	1.3	7.0		8.2	21		
Evans School	10-55		Unknown	162	3.5	0.06	17.6	1.6		127	17.1	15.0		7.7	85		
Appling School	10-55		Unknown	180	42.0	0.36	8.1	2.8		35	2.4	16.0		6.9	48		
Appling School	11-55		Unknown	149	13.0	0.03	9.7	1.9		82	1.1	10.5		7.7	51		
Warren County																	
Norwood School	12-55		Unknown	173	11.0	0.06	13.5	2.6		99	20.0	9.0		8.2	71		
Norwood Private Well	6-59		Unknown	39	6.0	0.30				30	0.0	6.0		6.8	36		
Richmond County																	
Augusta	7-49		Sand	24	2.0	0.09	1.2	Tr.		6	0.3	5.4		5.7	6		
Augusta	7-49		Sand	49	6.5	0.12	2.1	Tr.		9	0.3	5.6		8.6	11		
Private Well	10-58		Sand (Tu)	13	10.0	0.05	0.4	0.2	0.9	3*	0.4	1.2	0.3	5.7	2	0.1	

(8/1/61)

TABLE 1-2 (CONT'D)
WATER QUALITY CHARACTERISTICS
GROUND WATER
SAVANNAH BASIN
(All values in ppm except color and pH)

Sampling Station	Date of Analyses	Depth of well	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (Cont'd)																	
Jefferson County																	
Wrens	9-56		Sand			0.0	3.4			2	1.6	3.0		6.0	12		
Wrens	8-57		Sand			0.0	2.1			3	1.6	3.0		6.6	19		
Wrens	1-58		Sand			0.0	2.7			3	6.5	3.0		6.2	24		
Effingham County																	
Central of Ga.R.R.	3-40	431	Limestone(PA)	186	56	0.03	2.9	6.6	13.0	120*	7.0	4.6	0.1		100	0.2	
Rincon	11-56		Limestone	139	29.1	0.02	11.8	9.5		106	4.0	2.8		7.9	92	0.3	
Chatham County																	
Savannah	3-31	550	Limestone(PA)	180	56	0.04	3.0	11.0	6.3	139*	7.2	6.0	0.1		120		
Savannah	2-38	603	Limestone(PA)	176	53	0.01	2.6	10.0	11.4	134*	6.8	5.8	0.0		106	0.0	
Savannah	2-38	500	Limestone(PA)	173	53	0.01	2.6	9.7	10.9	137*	6.9	5.0	0.0		105	0.0	
Savannah	2-38	500	Limestone(PA)	181	53	0.0	2.7	10.0	12.4	145*	6.3	5.2	0.1		108	0.0	
Savannah	2-38	512	Limestone(PA)	174	52	0.01	2.7	9.1	11.1	137*	7.1	5.5	0.0		105	0.0	
Savannah	2-38	525	Limestone(PA)	182	54	0.01	2.7	11.0	11.2	145*	6.4	6.0	0.0		113	0.0	
Savannah	2-38	595	Limestone(PA)	183	55	0.01	2.7	11.0	10.8	146*	6.7	5.5	0.0		113	0.0	
Savannah	1-41	696	Limestone(PA)	179	50	0.01	2.5	9.2	15.2	135*	10.0	8.5	0.0		100	0.4	
Savannah (Fed.)		602	Limestone(PA)	347	40	0.02	2.8	20.0	60.2	145*	85.0	52.0	0.3		152	0.6	
Savannah (Fed.)	7-43	535	Limestone(PA)	260	40	0.01	1.8	16.0	48.0	149*	23.0	48.0	0.0		111	0.8	
Savannah Beach	8-59		Limestone(PA)	372	33.0	0.04	37.0	2.4	49.0	148*	116.0	35.0	0.6	8.0	191	0.8	
Cockspur Island	3-57		Sand(L)	4,980	31.0	0.16	116.0	94.0	1,568.0	140*	635.0	2,290.0	3.2	8.7	676	1.3	
Cockspur Island	3-57		Sand(Ta)	14,700	44.0	0.72	317.0	290.0	4,681.0	142*	1,390.0	7,540.0	2.2	7.1	1,980	1.0	
SOUTH CAROLINA																	
Oconee County																	
Walhalla																	
Private Well	1-46	570	Rock(Gn)			0.19				51*	12.0	3.0	0.1		48		
Pickens County																	
Arial																	
Private Well	1-46	240	Rock(Gn)			0.49				41*	1.0	2.0	1.8		32		
Private Well	1-46	270	Rock(G)			0.40				37*	10.0	4.0	0.1		34		
Anderson County																	
Anderson																	
Private Well	11-45	200	Rock(G)			0.10				69*	16.0	11.0	3.8		78	0.0	
Belton	11-45	215	Rock(G)			0.19				71*	2.0	6.0	6.6		54	0.2	
Honea Path	11-45	18	Rock(Gr)			0.70				14*	4.0	4.0	6.8		8	0.0	
Pendleton	1-46	110	Rock(G)			0.11				53*	4.0	6.0	9.4				
Iva	8-54	31	Rock(C)		20.0	0.05	2.6	1.8		17*	3.0	9.5	5.4	5.7	14		

(8/1/61)

TABLE 1-2 (CONT'D)
WATER QUALITY CHARACTERISTICS
GROUND WATER
SAVANNAH BASIN
(All values in ppm except color and pH)

Sampling Station	Date of Analyses	Depth of well	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
SOUTH CAROLINA (Cont'd)																	
Abbeville County																	
Abbeville	10-45	60	Rock(G)							54*	2.0	6.0	0.0		40	0.2	
Calhoun Falls	10-45	187	Rock(Gn)			0.10				62*	10.0	20.0	5.5		78	0.1	
Due West	11-45	125	Rock(G)			0.09				42*	2.0	3.0	3.5		39		
Abbeville Private Well	10-45	120	Rock(G)			0.0				154*	17.0	5.0	5.1		140	0.0	
Greenwood County																	
Greenwood Private Well	10-45	150	Rock(G)			0.15				64*	18.0	9.0	1.2		78	0.0	
Hodges Private Well	10-45	100	Rock(G)			0.28				47*	4.0	17.0	14.0		80	0.0	
Shoals Junction Private Well	10-45	Springs	Rock(M)							24*	3.0	2.0	0.2		22	0.1	
Ware Shoals Private Well	10-45	Springs	Rock(G)			0.12				15*	2.0	4.0	5.0		24	0.1	
Edgefield County																	
Edgefield	10-45	720	Rock(G)			0.20				121*	14.0	20.0	7.5		105	0.2	
Edgefield	1-55	700	Rock(C)	215	27.0	0.03	40.0	5.8	18.8	138*	16.0	18.0	7.0	7.0	125	0.0	
Aiken County																	
Aiken		Springs	Sand(B)			0.10				4*	1.0	4.0	2.9		6	0.0	
Aiken	3-51	Springs	Sand	23	5.9	0.02	0.8	0.4	2.8	3*	0.7	2.6	3.5	5.2	4	0.0	7
Barnwell County																	
Barnwell	3-46	180	Sand(B)			0.25				85*	1.0	4.0	0.1		70	0.1	
Williston	3-46	150	Sand			0.13				14*	1.0	4.0	1.0		75	0.1	
Private Well	6-50		Sand	29	8.7		4.2	0.5	2.4	14*	0.8	2.8	1.5	6.1	13	0.1	
Private Well	10-51		Sand(Tu)	44	12.0	0.08	7.5	0.7	2.0	15*	10.0	2.1	0.0	6.2	22	0.1	
Private Well	12-51		Sand(Tu)	18	8.3	0.03	1.0	0.4	1.8	4*	1.5	1.9	0.6	5.4	4	0.0	
Private Well	3-54		Limestone(PA)	97	14.0	0.04	27.0	1.2	1.7	83*	4.0	2.5	0.2	7.0	72	0.1	
Allendale County																	
Allendale	3-46	800	Sand(Tu)			0.22				127*	10.0	5.5	0.1		108	0.2	
Jasper County																	
Private Well	9-57		Limestone(PA)	163	30.0	0.09	22.0	8.5	11.0	120*	6.5	6.0	0.1	7.7	90	0.5	

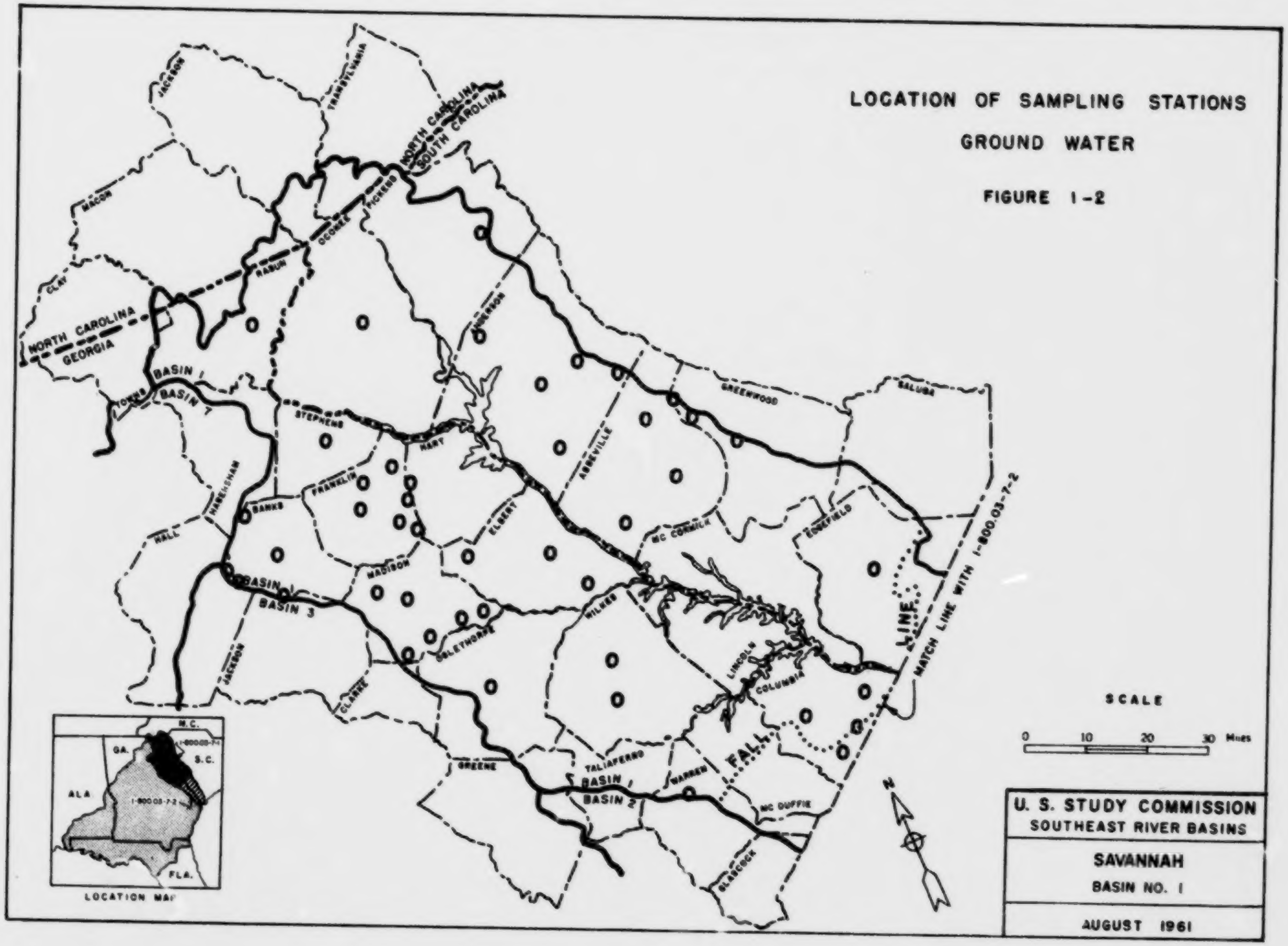
* As Bicarbonate

(8/1/61)

Rock:
C - Crystalline
G - Granite
Gr - Gravel
Gn - Gneiss
M - Mica

Sand:
Tu - Tuscaloosa
L - Lisbon
Ta - Tallahatta
B - Barnwell

Limestone:
PA - Principal Artesian


JACKSON
TRANSYLVANIA
MACON
CLAY
NORTH CAROLINA
GEORGIA
NORTH CAROLINA
SOUTH CAROLINA
PICKENS
OCONEE
RABUN
TOWNS
BASIN 1
BASIN 7
ANDERSON
STEPHENS
HART
HABERSHAM
FRANKLIN
BANKS
HALL
ELBERT
ABBEVILLE
GREENWOOD
SALUDA
MC CORMICK
EDGEFIELD
MADISON
BASIN 3
JACKSON
CLARKE
OGLETHORPE
WILKES
LINCOLN
COLUMBIA
GREENE
TALIAFERRO
WARREN
MC DUFFIE
GLASCOCK
BASIN 1
BASIN 2
FALL LINE
MATCH LINE WITH 1-800.03-7-2
N
SCALE
0
10
20
30 Miles
N.C.
GA.
S.C.
ALA.
FLA.
1-800.03-7-1
1-800.03-7-2
LOCATION MAP

LOCATION OF SAMPLING STATIONS
GROUND WATER

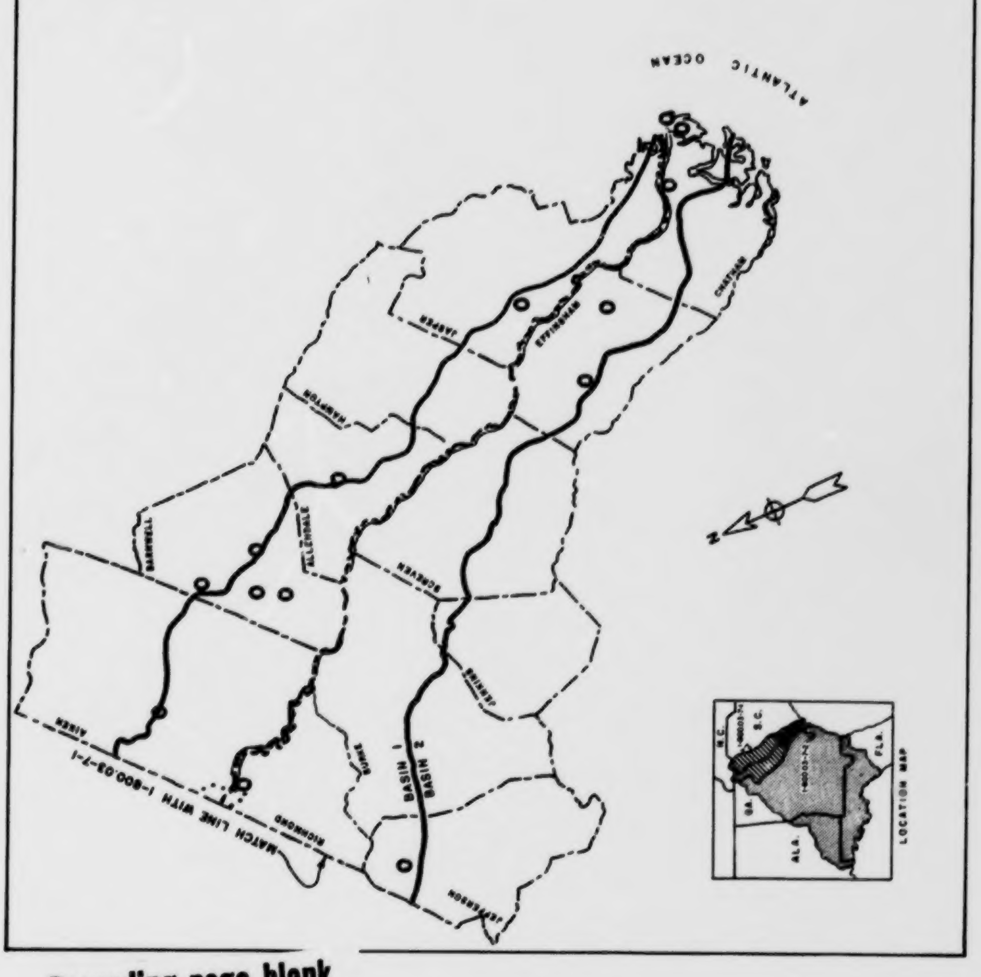
FIGURE 1-2

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SAVANNAH
BASIN NO. 1

AUGUST 1961

FIGURE I-2
(CONT'D)


SCALE
0
10
20
30 Miles
MATCH LINE WITH I-800.03-7-1
AIKEN
RICHMOND
BURKE
JEFFERSON
BARNWELL
ALLENDALE
HAMPTON
SCREVEN
JENKINS
JASPER
EFFINGHAM
CHATHAM
BASIN 1
BASIN 2
ATLANTIC OCEAN
N
N.C.
S.C.
GA.
ALA.
FLA.
LOCATION MAP

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SAVANNAH
BASIN NO. I

AUGUST 1961

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TABLE 1-3
RADIOACTIVITY IN WATER
SAVANNAH BASIN

Sampling Station	Period of Analyses	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Avg.	Avg.	Max.	Min.	
Savannah River at North Augusta, . C.	1958-59	48	1.0(14)	8.0	0	19	464	0	U. S. Public Health Service, Basic Data Station
Savannah River above Atomic Energy Power Plant	1958	*	0.4	0.9		15	50		
	1959	*	0.4	0.9		17	63		Sr^{90}avg=0.66 uuc/l
	1960	*	0.3	0.7		6	9		Sr^{90}avg=0.41 uuc/l
Savannah River below Atomic Energy Power Plant	1958	*	0.4	0.9		28	82		
	1959	*	0.4	1.4		36	140		
	1960	*	0.5	0.9		24			
Savannah River at U. S. Highway 301	1958	*	0.4	0.9		26	140		Sr^{90}avg=1.10 uuc/l
	1959	*	0.4	1.4		21	88		Sr^{90}avg=1.27 uuc/l
	1960	*	0.3	0.9		26	110		Sr^{90}avg=0.50 uuc/l
Savannah River at Stokes Bluff	1958	*	0.4	0.9		17	63		
	1959	*	0.4	0.9		23	97		
	1960	*	0.4	1.0		21	86		
Savannah River at Port Wentworth, Ga.	1958-59	46	1.6(10)	5.0	0	36	114	0	U. S. Public Health Service Basic Data Station

*For 1958 and 1959, annual averages shown are based on weekly grab samples except for station at Highway 301 where sampling is continuous. For 1960, annual averages shown are based on continuous sampling at all stations.

Note: Number in parenthesis show number of analyses upon which the average was computed if different than total number of analyses.

(8/15/61)

OGEECHEE BASIN

Surface Water

Data on surface water quality in the Ogeechee Basin were quite limited. Table 2-1 and Figure 2-1 show the type and coverage of the surface water data.

Data were available at five stations, only two of which were located on the main stem. Three of the stations were located at or near Louisville. Most of the data presented were collected by the U. S. Geological Survey in the late 1930's and thus may not represent current conditions. However, the data shown for 1959 indicated a good correlation with the earlier analyses.

As shown in Table 2-1, only chemical quality data were available. Data on the radiological, physical, and bacteriological (sanitary) quality of the surface waters at an additional four stations in the Ogeechee Basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

Total dissolved solids ranged from 23 to 66 ppm and with the possible exception of iron, the mineral constituents reported were low. Iron concentrations in excess of 0.3 ppm were reported at two of the stations in the upper portion of the basin. The alkalinity of the waters was consistently below 30 ppm and the hardness did not exceed 25 ppm.

Ground Water

Data on ground water quality were also limited. Table 2-2 and Figure 2-2 show the type and coverage of the ground water data.

Analyses were available at nineteen stations within the basin. The stations were fairly evenly distributed throughout the basin although only two were located above the fall line. The data presented were obtained from reports of the U. S. Geological Survey and records of the Georgia Department of Public Health, private laboratories and industrial firms. Most of the analyses presented were made during the past 20 years and because of the general unchanging character of ground water quality, probably represent current conditions.

Below the fall line, the total dissolved solids of the ground waters ranged from 89 to 225 ppm. Excluding these two extreme values, however, the solids only varied from 152 to 198 ppm. The station reporting 89 ppm of dissolved solids also reported an iron concentration of 7.5 ppm. The iron concentrations at the other stations ranged from 0.0 to 0.6 ppm. Other chemical constituents reported were within the limits expected of a limestone ground water. Alkalinities ranged from 32 to 146 ppm and hardness from 42 to 132 ppm.

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From the single analysis of water obtained from the rock and sand aquifers above the fall line, it appeared that this water was less mineralized and softer than the limestone water.

TABLE 2-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
OGEECHEE BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses		Average Discharge (cfs)	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																		
Ogeechee River, at Louisville	1937-59	2	Avg.	421	66	12.0	0.65	2.8	1.4	2.5	14	0.9	2.5	0.8	6.3	13	0.0	16
Big Creek, near Louisville		1			34	12.0	0.02	4.6	1.0		16	1.6	2.4	0.9		16		8
Rocky Comfort Creek, near Louisville	1959	1			23	14.2	0.90	2.0	1.1	0.4	7	0.0	1.0		6.0	10	0.0	
Canoochee River, at Claxton	1937	2	Avg.	94	51	11.0	0.16	1.8	2.0	6.1	5	1.1	9.3	0.1		9	0.0	71
Ogeechee River, near Eden	1937-38	36	Avg.	1844	59	11.0	0.20	7.5	1.2	4.5	27	2.5	4.3	0.2		24	0.0	50
	1937	1			54	6.7	0.19	5.8	1.3	4.1	24	1.6	3.2	0.3		20	0.0	80

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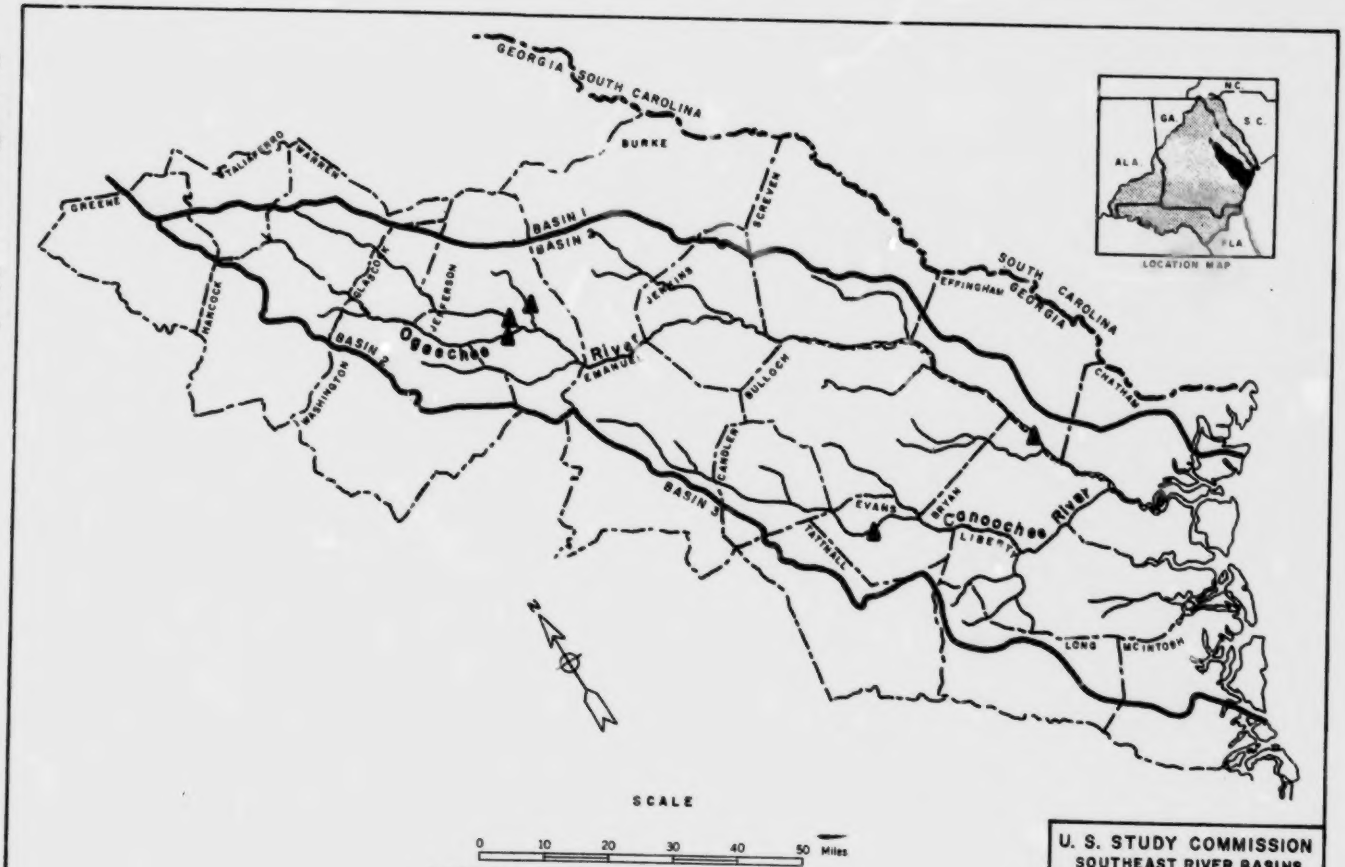
* As Bicarbonate

(8/11/61)


LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
GEORGIA
SOUTH CAROLINA
GEORGIA
SOUTH CAROLINA
BURKE
SCREVEN
EFFINGHAM
CHATHAM
GREENE
TALIAFERRO
WARREN
GLASCOCK
JEFFERSON
JENKINS
HANCOCK
WASHINGTON
EMANUEL
BULLOCH
CANDLER
EVANS
BRYAN
LIBERTY
TATTNALL
LONG
McINTOSH
BASIN 1
BASIN 2
BASIN 2
BASIN 3
Ogeechee River
Canoochee River
N
SCALE
0
10
20
30
40
50 Miles

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 2-1

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

OGEECHEE
BASIN NO. 2

AUGUST 1961

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TABLE 2-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
OGEECHEE BASIN
(All values in ppm except pH and color)

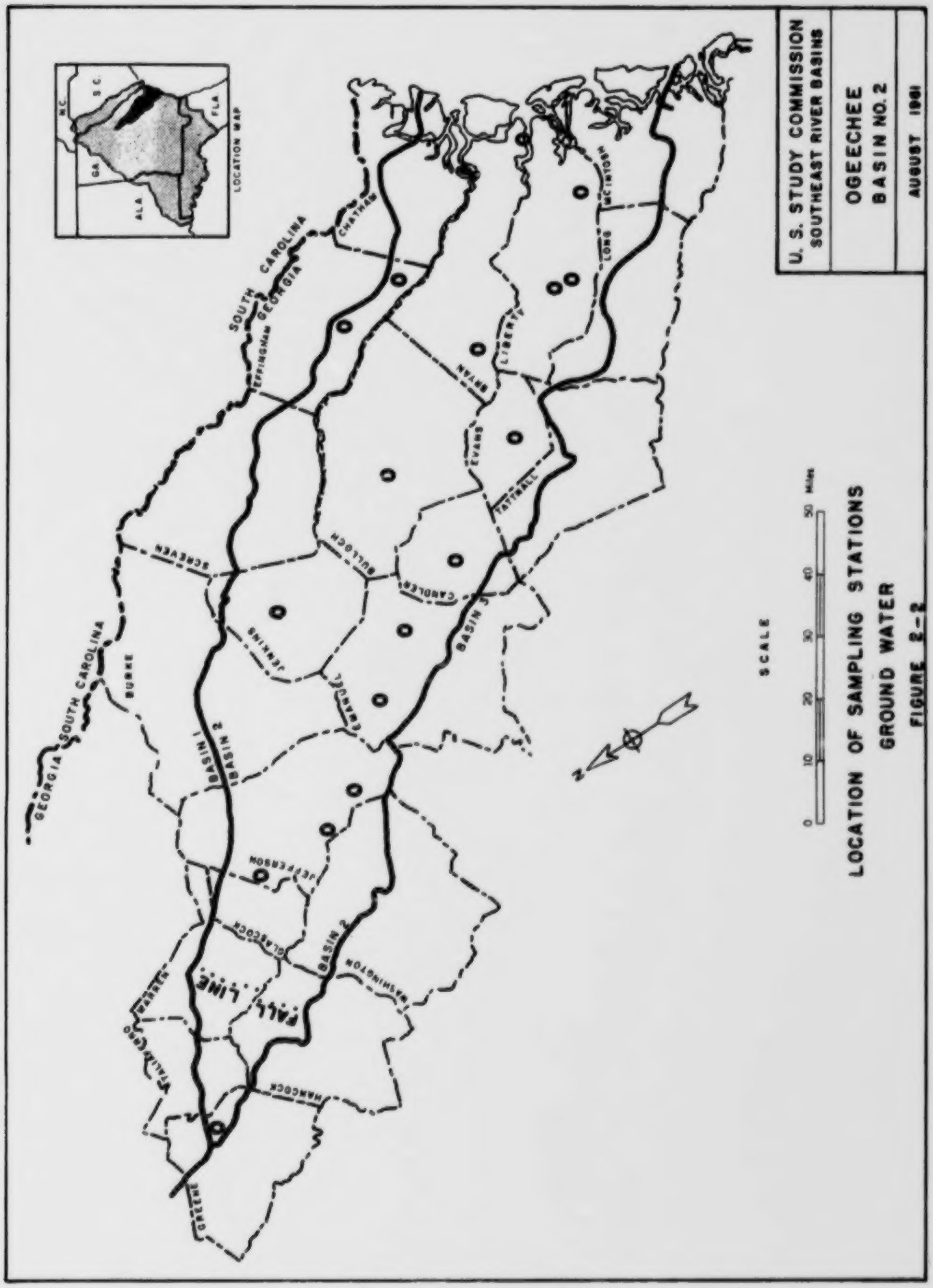
Sampling Station	Period of Analysis	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																	
Greene County																	
Union Point	1935	1	Rock(C)	112	46.0	0.30	4.8	6.9	10.3	53	0.0	9.6		6.4	40		7
Jefferson County																	
Avera	1957	1	Sand	85	10.0	0.0	14.0	1.0		97	154.0	8.0	Tr.	7.4	39	0.1	3
Bartow	1957	1	Limestone(PA)	225	20.0	0.35	41.0	0.0		97	5.0	7.0	0.0	7.8	109	0.4	0
Louisville		1	Limestone(PA)			0.60		0.0						7.1	46		9
Jenkins County																	
Millen	1938	2	Limestone(PA)	169	37.5	0.32	41.0	3.4	4.1	135	10.5	2.2	Tr.		117	0.0	
Effingham County																	
Guyton	1941	1	Limestone(PA)	163	39.0	0.16	24.0	9.2	17.3	146	5.2	4.2	0.0		98	0.3	5
Meldrin	1957	1	Limestone(PA)	89	10.0	7.50				32	0.0	21.0		6.0	42		6
Emanuel County																	
Twin City	1938-43	2	Limestone(PA)	193	36.3	0.06	38.4	5.4	8.1(1)	148	6.7	4.5(1)	0.0	7.8(1)	118	0.3(1)	
Summerton	1954	1	Limestone(PA)	198	8.0	0.30	53.0	Tr.	Tr.	125	7.0	14.2	0.0	8.0	132	0.4	
Candler County																	
Metter	1943-52	2	Limestone(PA)	174	30.0	0.59	28.6	2.4	6.1	117	4.5	4.6	0.0	8.0	81	0.2	0
Bullock County																	
Statesboro	1938	3	Limestone(PA)	184	56.0	0.07	34.3	5.9	8.2	139	4.8	5.0	0.6		110	0.0	
Statesboro	1956-59	4	Unknown			Tr.	88.0			99	1.9	9.4		7.7	115		0
Evans County																	
Claxton	1943	1	Limestone(PA)	160	46.0	0.06	23.0	9.1	13.6	128	4.2	3.5	0.1	7.8	95	0.4	0
Claxton	1956-59	4	Limestone(PA)			0.0	64.0			98	7.4	6.4		7.8	95		0
Liberty County																	
Fort Stewart	1940-41	2	Limestone(PA)	152	34.0	0.41	18.0	8.7	18.8	120	36.2	5.3	1.5	7.9(1)	81	0.5	10
Hinesville	1956-59	4	Limestone(PA)			0.0	48.7			94	5.1	7.3		7.9	92		0
Kilkenny	1957	1	Limestone(PA)	171	35.0	0.15	21.0	13.0	22.0	146	26.0	4.0	0.1		101	1.1	
Riceboro		1	Limestone(PA)	190	18.0	0.30	32.0	5.0	Tr.		29.0	6.0		8.0	80		
Bryan County																	
Pembroke	1941	1	Limestone(PA)	171	50.0	0.02	32.0	5.1	9.7	133	6.9	3.8	0.0		101	0.2	1

* As Bircarbonate

Note-Number in parentheses shows number of analyses upon which average was computed if different than total number of analyses.

Legend:
Rock(C) - Crystalline Rock
Limestone(PA) - Principal Artesian

(8/11/61)


U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
OGEECHEE
BASIN NO. 2
AUGUST 1961
LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
SOUTH CAROLINA
GEORGIA
CHATHAM
EFFINGHAM
BRYAN
LIBERTY
LONG
MC INTOSH
EVANS
TATTNALL
BULLOCH
CANDLER
SCREVEN
JENKINS
EMANUEL
BURKE
JEFFERSON
GLASCOCK
WARREN
WASHINGTON
HANCOCK
TALIAFERRO
GREENE
BASIN 1
BASIN 2
BASIN 3
FALL LINE
SCALE
0
10
20
30
40
50 Miles
N

LOCATION OF SAMPLING STATIONS
GROUND WATER
FIGURE 2-2

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ALTAMAHA BASIN

Surface Water

The availability of surface water quality data in the Altamaha Basin was good. Tables 3-1 and Figure 3-1 show the type and coverage of the surface water data.

Data were available at twenty-eight stations within the basin. The stations were almost equally distributed between the Ocmulgee and Oconee portions of the basin, but there was only one station located on the main stem of the Altamaha. The data presented were obtained from reports of the U. S. Geological Survey, the Georgia Department of Mines, Mining, and Geology, and unpublished records of the Georgia Department of Public Health and private laboratories and industrial firms. A number of the stations had analyses of several years duration. Because of the changing character of surface waters, analyses made at different time periods were listed separately. At more than half the stations the analyses that were available were made prior to 1940. At the stations where several years of record were available, it was noted that the analyses made in the late 1930's indicated a softer and generally less mineralized water than those made later.

Although there were a relatively large number of stations for which data were available, only a third of them were located on the main stems of the basin's major rivers. Most of the data were from stations located on the many tributary streams located within the basin.

As shown in Table 3-1, only chemical quality data was available. Data on the radiological, physical, and bacteriological (sanitary) quality of the surface waters at an additional nine stations in the Altamaha Basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

The total dissolved solids reported ranged from 20 to 109 ppm. The concentration of individual chemical constituents was low with only one analysis showing the unusually high concentration of iron of 1.5 ppm. Hardness was consistently reported below 50 ppm with alkalinity exceeding this value at only two stations. Values of color appeared normal for surface waters.

Ground Water

The availability of ground water quality data in the Altamaha Basin was good. Tables 3-2 and Figure 3-3 show the type and coverage of the ground water data.

Data were available at sixty-nine stations within the basin. Distribution of these stations throughout the basin was good with

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about half of them located above the fall line. The data presented were obtained mainly from the records of the Georgia Department of Public Health, various private laboratories, industrial firms and consulting engineers, and reports of the U. S. Geological Survey.

A number of the stations had several years of record available with most of these having recent analyses. About half of the stations located above the fall line were private wells or schools and information concerning the depth of the well or the aquifer used was not available. All of the remaining stations above the fall line obtained water from the crystalline rock aquifers.

The stations above the fall line were located mostly in the extreme upper portion of the basin with only a few stations located along the fall line. Several stations were located in the belt of sand aquifers which occur between the fall line and the limestone aquifers of the coastal plains. The remaining stations in the lower portion of the basin were located in the region of limestone aquifers.

The total dissolved solids of the waters obtained from the crystalline rock aquifers ranged from 8 to 687 ppm. Excluding these two extremes, however, the solid content only ranged from 101 to 259 ppm. The station reporting the high solids content also reported a hardness of 410 ppm. The range of hardness reported at the other stations was 14 to 108 ppm. The iron content of the waters of the crystalline rock aquifers appeared high. Six stations reported concentrations of 0.3 ppm or greater while an additional eight reported iron contents in excess of 0.2 ppm. The iron content of the stations of unknown aquifers was high with several reporting concentrations in excess of 1.0 ppm. Other chemical constituents appeared to be within normal levels.

The several analyses available for the sand aquifers seemed inconsistent. Dissolved solids ranged from 25 to 229 ppm with one station reporting a range of 80 to 227 ppm. Only two stations reported an iron content in excess of 0.3 ppm. Values of hardness, alkalinity and individual chemical constituents varied considerably making any comparison impractical.

The analyses of the waters of the limestone aquifers were consistent and also normal for this type of ground water. Total dissolved solids ranged from 155 to 317 ppm and hardness from 95 to 202 ppm. Only three stations reported iron in excess of 0.3 ppm. Other chemical constituents appeared to be within the normal levels expected of a limestone water.

TABLE 3-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

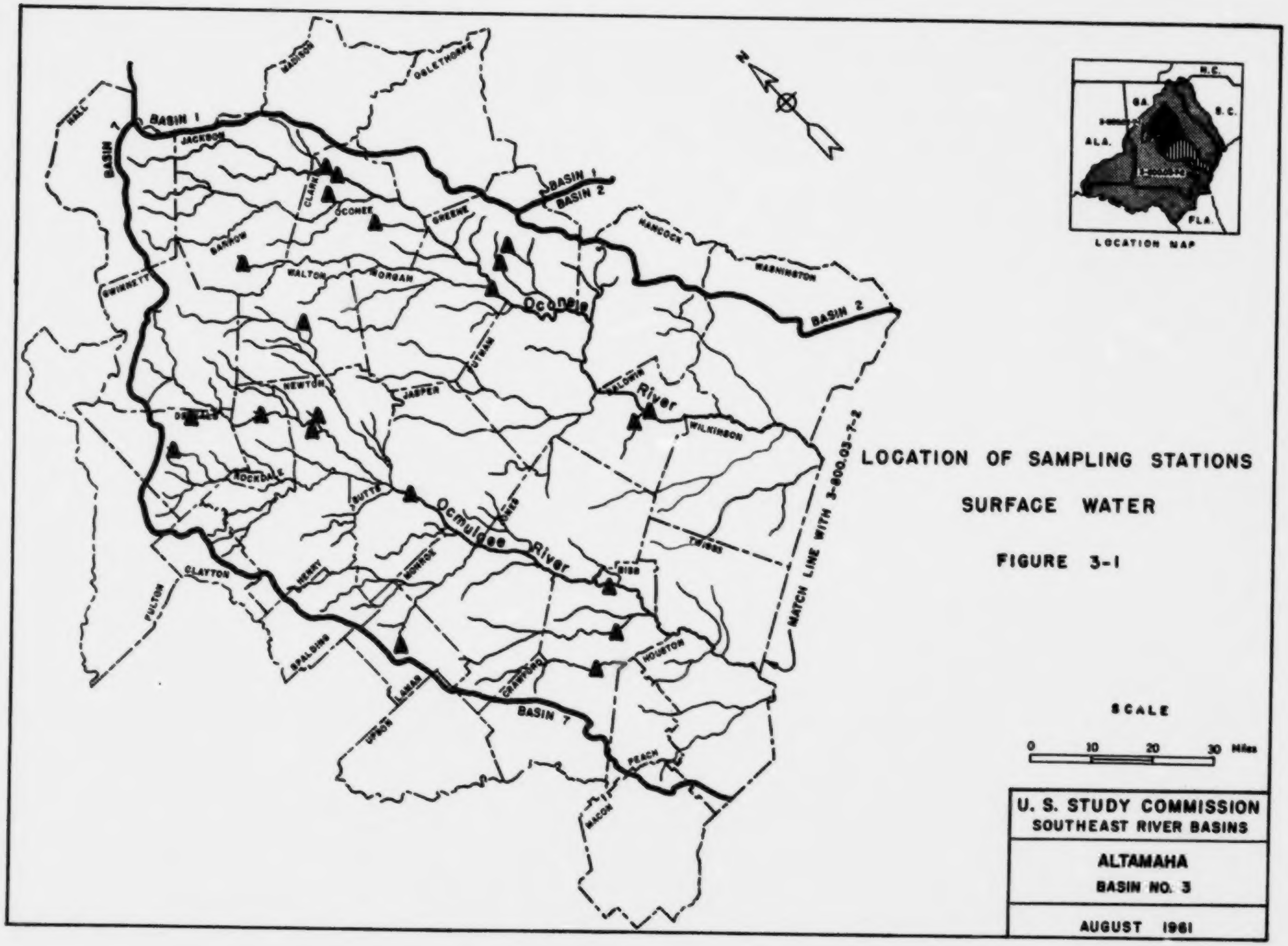
Sampling Station	Period of Analysis	No. of Analyses		Average Discharge (cfs)	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																		
Unnamed Creek, at Stone Mountain	1936	1					1.50				17	6.0	3.0		6.7	14		30
Burnt Fork Creek, at Decatur	1938	1			42	13.0	0.03	3.9	1.6	4.1	25*	1.4	2.0	0.7		16	0.0	6
Jacks Creek, at Monroe	1938	1			27	10.0	0.02	2.1	0.9	2.8	13*	1.4	1.8	0.6		9	0.0	3
	1956-59	4	Avg.				0.0	17.5			24	7.9	3.5		8.5	49		
			Max.				0.0	20.6			29	11.6	4.9		8.8	55		
			Min.				0.0	15.8			19	6.6	1.2		8.1	44		
Dried Indian Creek, at Covington	1938	1			38	15.0	0.10	2.3	0.9	4.5	18*	0.9	2.1	0.8		9	0.0	10
Yellow River, near Porterdale	1938	1			42	14.0	0.02	3.3	1.2	5.4	24*	1.6	2.1	0.8		13	0.0	5
Yellow River, at Conyers	1956-59	4	Avg.				0.0	14.4			36	5.0	3.0		7.3	43		
			Max.				0.0	19.2			51	6.6	4.9		7.6	51		
			Min.				0.0	11.0			22	1.6	0.6		6.9	32		
Ocmulgee River, near Jackson	1941	1		368	53	14.0	0.04	4.4	1.7	8.3	24*	4.5	4.2	1.9		18	0.7	8
Little Towaliga Cr. at Barnesville	1938	1			43	18.0	0.03	2.3	1.0	5.4	18*	2.7	2.6	0.5		10		6
Tobesofkee Creek, near Macon	1937	2	Avg.	1448	41	10.1	0.18	2.4	1.1	5.9	17*	2.8	2.2	0.4		11	0.1	22
Echeconee Creek, near Macon	1937	2	Avg.	2228	20	11.4	0.47	2.6	1.2	5.0	17*	2.9	1.9	0.3		12	0.0	20
Ocmulgee River, at Macon	1937-38	36	Avg.	2573	44	12.0	0.06	3.6	1.6	6.2	22*	3.9	2.9	1.0		16	0.0	9
			Max.	18400	57	19.0	0.18	4.4	2.2	7.8	28	4.8	3.6	1.5		20	0.1	18
			Min.	1007	31	7.2	0.01	2.6	1.1	3.9	13	2.7	1.8	0.3		11	0.0	5
	1956-59	4	Avg.				0.0	11.6			21	4.1	3.8		8.6	36		
			Max.				0.0	13.0			31	8.2	4.8		9.0	41		
			Min.				0.0	10.2			15	0.0	3.0		8.2	29		
Ocmulgee River, near Abbeville	1937	1		8440	48	8.3	0.31	5.7	1.5	4.4	25*	4.0	2.6	0.6		20	0.0	21
Little Ocmulgee River, near Towns	1937	1		567	41	7.4	0.16	2.5	0.9	3.7	10*	1.4	3.5	0.3		10	0.0	69
Ocmulgee River, at Lumber City	1937	1		3000	58	11.0	0.11	10.0	1.7	5.5	39*	3.3	3.1	0.4		32	0.0	10
	1945-46		Avg.	7395	55	11.0	0.07	8.2	1.4	4.2	32*	3.2	3.5	0.6	7.0	26	0.2	15

(8/11/61)

TABLE 3-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

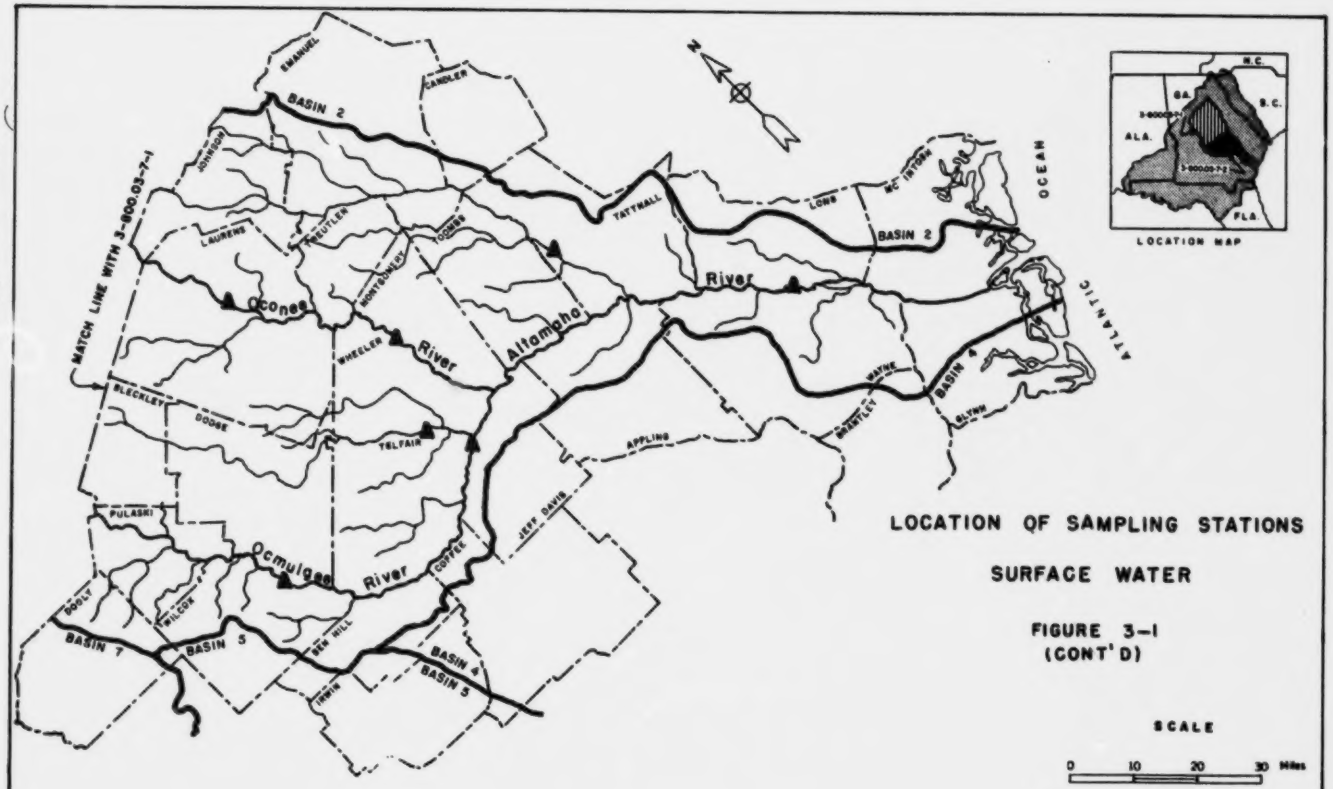
Sampling Station	Period of Analysis	No. of Analyses		Average Discharge (cfs)	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D)																		
Cedar Creek, near Winder	1938	1			30	13.0	0.02	1.5	0.6	3.9	12*	1.6	1.9	0.7		6	0.0	4
Sandy Creek, near Athens	1938	1			37	12.0	0.12	2.9	1.5	4.5	20*	2.3	2.0	0.6		13	0.0	12
	1951	1			40	14.0	0.05	3.6	1.3	4.2	21*	2.1	2.4	0.5	6.6	14	0.1	3
	1956-59	4	Avg.				0.0	9.8			22	4.1	2.3		7.9	28		
			Max.				0.0	11.0			22	6.6	3.0		8.2	36		
			Min.				0.0	8.2			22	3.3	1.2		7.3	24		
Oconee River, at Athens	1940	1			43	15.0	0.05	3.9	1.8	5.0	25*	2.9	2.1	0.3		17	0.1	6
Middle Oconee River, at Athens	1937	1			39	14.0	0.08	3.0	1.8	5.0	21*	2.1	2.1	0.3		15		8
Cells Creek, at Watkinsville	1938	1			36	13.0					12	0.2	2.3					
Jackson Branch, near Greensboro	1947	1			109	27.0					45	3.2	5.2		7.4	33		
Richland Branch, near Greensboro	1947	1			83	14.0					42	0.8	3.4		7.3	26		
Oconee River, near Greensboro	1937	1		1030	43	15.0	0.07	3.1	1.5	4.9	21*	3.2	2.1	1.2		14	0.0	8
Fishing Creek, near Milledgeville	1938	1			80	20.0	0.03	7.1	3.8	11.0	43*	5.6	10.0	0.2		33	0.0	12
	1951	1			89	27.0	0.01	7.9	4.0	11.0	54*	3.8	8.4	0.1	7.2	36	0.2	3
	1956-59	4	Avg.				0.0	13.4			24	7.4	4.6		8.6	40		
			Max.				0.0	15.8			32	13.2	6.1		8.9	50		
			Min.				0.0	9.6			14	1.6	3.6		8.0	31		
Oconee River, at Milledgeville	1937-38	36	Avg.	2863	51	16.0	0.05	4.1	1.8	6.8	27*	2.9	3.2	1.2		18	0.0	8
			Max.	22190	65	19.0	0.10	5.4	2.4	11.9	36	5.7	7.8	2.8		22	0.1	14
			Min.	746	41	10.0	0.01	3.0	1.3	4.5	18	1.8	1.8	0.1		13	0.0	3
Oconee River, at Dublin	1937	1		1960	55	14.0	0.06	5.4	2.1	7.2	27*	3.7	4.2	2.0		22	0.0	10
Oconee River, near Mt. Vernon	1937	1		2130	54	14.0	0.12	6.8	1.8	5.8	34*	2.9	2.9	0.2		24	0.0	12
Ohoopee River, near Reidsville	1937	1		144	46	12.0	0.13	4.2	1.1	3.7	14*	1.6	4.8	0.1		15	0.0	36
Altamaha River, at Doctortown	1937-38	36	Avg.	10330	54	12.0	0.10	7.2	1.6	5.3	31*	3.2	3.2	0.5		25	0.0	19
			Max.	43570	60	15.0	0.27	9.6	1.9	6.1	38	4.4	4.1	0.8		31	0.2	30
			Min.	4379	44	8.6	0.02	3.2	1.1	4.1	15	2.3	1.8	0.2		13	0.0	8

* As Bicarbonate
(8/11/61)


N
BASIN 1
BASIN 2
BASIN 7
HALL
MADISON
OGLETHORPE
JACKSON
CLARKE
OCONEE
BARROW
WALTON
MORGAN
GREENE
HANCOCK
WASHINGTON
GWINNETT
NEWTON
JASPER
PUTNAM
BALDWIN
WILKINSON
DEKALB
ROCKDALE
BUTTS
JONES
TWIGGS
BIBB
HENRY
MONROE
CLAYTON
FULTON
SPALDING
LAMAR
UPSON
CRAWFORD
HOUSTON
PEACH
MACON
Oconee
River
Ocmulgee
River
MATCH LINE WITH 3-800.03-7-2
N.C.
S.C.
GA.
ALA.
FLA.
LOCATION MAP
SCALE
0
10
20
30 Miles
U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
ALTAMAHA
BASIN NO. 3
AUGUST 1961

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 3-1


N
EMANUEL
CANDLER
BASIN 2
JOHNSON
LAURENS
TREUTLEN
MONTGOMERY
TOOMBS
TATTNALL
LONG
MC INTOSH
OCEAN
ATLANTIC
Oconee
River
Altamaha
River
WHEELER
BLECKLEY
DODGE
TELFAIR
APPLING
WAYNE
BRANTLEY
GLYNN
BASIN 4
JEFF DAVIS
COFFEE
PULASKI
Ocmulgee
River
DOOLY
WILCOX
BEN HILL
IRWIN
BASIN 7
BASIN 5
MATCH LINE WITH 3-800.03-7-1
N.C.
S.C.
GA.
ALA.
FLA.
3-800.03-7-1
3-800.03-7-2
LOCATION MAP

LOCATION OF SAMPLING STATIONS

SURFACE WATER

FIGURE 3-1
(CONT'D)

SCALE

0 10 20 30 Miles

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

ALTAMAHA
BASIN NO. 3

AUGUST 1961

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TABLE 3-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																	
Jackson County																	
Commerce (S)	1949	1	Rock(C)	230	10.0	0.12 -	16.5	5.3		10	24.6	31.2		5.6	64		
South Jackson(S)	1958	1	Rock(C)	105	25.8	0.03	12.7	2.4	7.3	58	2.8	7.5		7.3	42	0.4	
Neese	1958	1	Rock(C)	110	24.9	1.80	11.8	4.1	3.4	50	7.0	2.0		7.2	47	0.0	
Jefferson (PW)	1960	1	Unknown	81	6.0	0.20					10.0	0.0		6.2	44		2
Clarke County																	
Athens (PW)	1946-59	2	Unknown	64	13.0	3.05	4.3(1)	2.0(1)		37	0.5	2.0		6.7	28		8(1)
Greene County																	
Siloam (S)	1956	1	Rock(C)	171	13.0	0.12	25.8	2.6		82	Tr.	3.5		7.4	77		
Hancock County																	
Devereux (S)	1958	1	Rock(C)	108	26.2	0.78	6.7	4.1	3.5	38	5.6	2.0		7.1	35	0.1	
Gwinnett County																	
Lawrenceville	1947-59	7	Rock(C)	136(3)	24.0(3)	0.73(6)	23.4(5)	4.8(2)	Tr. (1)	56	9.1(6)	6.3(6)	0.0(1)	6.9	77	0.0(1)	
Dacula	1947	1	Rock(C)	135	29.0	0.15	12.3	2.2		35	0.2	5.4		6.3	40		
Loganville	1948	1	Rock(C)	254	21.0	2.70	6.2	2.3		14	1.0	55.0		6.8	37		
Snellville	1951-54	3	Rock(C)	101	23.3	0.21	7.1	0.6	Tr. (1)	39	0.1	4.5	0.0(1)	6.6(2)	14	0.0(1)	
Barrow County																	
Bethlehem (PW)	1958	1	Unknown	94	23.4	0.0	8.8	5.3	2.5	48	2.8	2.0		7.0	45	0.0	
DeKalb County																	
County (S)	1956	1	Unknown	70	17.5	0.12	10.6	1.4		41	0.8	0.5		6.8	33	0.2	
Lithonia (PW)	1960	1	Unknown	56	6.0	0.70				40	0.8	0.0		5.7	44		3
Walton County																	
Monroe (PW)	1955-57	2	Unknown	123	15.8	0.13	14.3	2.4		66	1.0	3.5		7.2	47	0.0(1)	
Good Hope (S)	1956-57	2	Unknown	32	12.3	0.19	3.4	0.4	30.0(1)	69(1)	3.1	2.5	Tr. (1)	7.0	10	0.1	
Walnut (S)	1956	1	Unknown	98	26.1	0.02	3.0	0.6		22	0.1	1.0		6.6	10	0.1	
Jersey (S)	1960	1	Unknown	229	4.0	0.30				13	80.0	42.0		4.9	60		2
Clayton County																	
Lovejoy (PW)	1952-58	3	Unknown	112	16.3	0.21	15.1(2)	7.9(2)	Tr. (1)	56	3.3	5.4	0.1(1)	7.0	62	0.3(1)	4(2)
Jonesboro	1958	1	Rock(C)	259	14.0	0.10	40.0	Tr.	10.0	92	12.0	5.5	6.0	8.5	100	0.6	3
Fulton County																	
East Point	1938	2	Rock(C)	149	19.0	0.29	21.5	5.4	10.1	25*	53.5	10.4	9.0(1)		71		
Hapeville	1938-51	3	Rock(C)	8(2)	33.0	0.27(1)	11.0(1)	4.5(1)	9.6(1)	80*	7.0(1)	2.5(1)	22.0(1)		58		2(1)
Henry County																	
Hampton	1951-60	6	Rock(C)	140(5)	40.7(4)	0.24(5)	13.8(4)	7.9(4)	2.8(3)	64	0.9(5)	18.4(5)	0.0(1)	7.0	68	0.0(3)	
Stockbridge(PW)	1958	1	Unknown	79	8.0	1.80				54	0.0	3.0		6.2	52		3

(8/11/61)

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TABLE 3-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D)																	
Rockdale County																	
Conyers (PW)	1958	2	Unknown	95	35.7	0.10	9.0	3.1		45	2.5	3.0		7.2	36	0.3	
Newton County																	
Covington (PW)	1952-60	3	Unknown	143	24.5	2.82	12.6(2)	0.4(2)		83	5.4	6.2	0.1(1)	8.3	41	0.6(1)	5(1)
Mansfield	1939-59	2	Rock(C)	142	24.0	0.30(1)	28.0(1)	9.0(1)	Tr.(1)	89(1)	0.3	18.9	2.0(1)	7.4(1)	108(1)	0.1(1)	0(1)
East Newton (S)	1955	1	Rock(C)	116	18.0	0.06	13.7	2.2		45	0.1	8.5		6.9	44		
Livingston (S)	1955	1	Rock(C)	143	29.0	0.15	25.0	0.4		85	10.7	4.2		7.9	66		
Morgan County																	
Rutledge	1938-59	2	Rock(C)	121(1)	29.0(1)	0.21	16.0(1)	3.4(1)	11.1(1)	71	9.2(1)	5.5	10.0(1)	6.7(1)	45	0.2(1)	
Springfield(S)	1955	1	Rock(C)	107	17.0	0.21	10.6	4.4		57	34.0	7.0		7.7	45		
Buckhead (S)	1956	1	Rock(C)	117	15.0	0.24	10.6	2.1		55	Tr.	2.5		7.6	36		
Bostwick (S)	1956	1	Rock(C)	118	37.5	0.30	13.1	2.3		54	2.0	1.5		7.0	43	0.2	
Spalding County																	
Sunnyside (PW)	1958	1	Unknown	57	6.0	0.10				11	0.0	10.0		5.7	22		2
Butts County																	
Indian Sprs. Pk.	1952-58	3	Rock(C)	151	18.0	0.28	19.4(2)	0.7(2)	Tr.(1)	124	1.6	7.4(2)	0.0(1)	7.6	63	0.0(1)	3(1)
Putnam County																	
Eatonton	1958	1	Rock(C)	687	26.0	0.08	161.0	2.1	28.2	82*	366.0	4.5	0.2	7.3	410	1.0	
Lamar County																	
Barnesville(PW)	1952	1	Unknown	47	6.0	0.20				41	0.0	3.0		6.4	24		2
Milner (PW)	1959	1	Unknown	61	6.0	5.40				40	0.0	0.0		6.5	26		
Monroe County																	
Culloden (PW)	1959	1	Unknown	53	6.0	0.90				30	0.0	2.0		6.5	28		2
Forsyth (PW)	1960	1	Unknown	118	6.0	0.90				72	0.0	3.0		6.5	62		3
Baldwin County																	
Milledgeville(PW)	1956	1	Unknown	148	15.0	8.70				150	0.0	2.0		6.4	140		10
Bibb County																	
Macon (PW)	1958-59	2	Unknown	37	8.0	4.20(1)				23	1.4	1.0		7.4	16	0.1(1)	
Washington County																	
Sandersville	1938	2	Sand(Tu)	227	29.5	0.10	70.0	1.7	4.1	210*	6.2	6.3	0.3		182		
Sandersville	1944	1	Sand(Tu)	80	22.0	0.87	16.0	1.5	4.4	54*	7.7	2.4	0.0		46	0.0	
Twiggs County																	
Dry Branch (PW)	1944	1	Sand(Tu)	68	18.0	0.02	15.0	1.1	1.1	45*	3.1	2.1	1.1		42	0.1	
Jeffersonville	1944	1	Sand(Tu)	197	24.0	0.06	60.0	1.7	2.7	178*	9.4	4.6	0.1		157	0.1	2
Danville (S)	1957	1	Sand	229	36.0	0.0	75.0	1.0	Tr.	173	0.0	9.0	0.0	7.2	100	0.1	

(8/11/61)

TABLE 3-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D)																	
Wilkinson County																	
Gordon	1944	1	Sand	40	5.0	0.11	1.9	1.7	6.0	2*	0.5	5.2	19.0		12		
Toomsboro	1951	1	Sand	202	23.0					137	9.7	6.4		7.0	137		
McIntyre	1955	1	Sand			0.10				18				6.1	34		
Peach County																	
Fort Valley	1938-59	5	Sand(Tu)	19(1)	6.8(1)	0.0	3.9	0.6(1)	1.8	5	1.8	2.2	1.5(1)	7.5(4)	12		
Houston County																	
Perry	1959	1	Sand(Tu)	25	10.0	1.00	1.2	0.9	1.2	0*	8.8	2.5	0.2	4.4	6	0.0	
Emanuel County																	
Swainsboro	1949-59	5	Limestone(PA)	175(1)	22.0(1)	0.02	45.7	3.1(1)		116	4.4	3.4(4)		7.7	127		
Tattnall County																	
Reidsville	1943	1	Limestone(PA)	155	33.0	0.31	24.0	8.2	16.4	139*	5.2	4.1		8.0	95	0.4	2
Long County																	
Ludowici	1939-40	2	Limestone(PA)	215	39.5	0.22(1)	28.0(1)	15.0(1)	18.5(1)	137	28.1	7.5	0.1(1)		132(1)	0.4(1)	
Laurens County																	
Dublin	1938-60	8	Limestone(PA)	213(4)	21.8(4)	0.74(4)	46.2	3.5(4)	4.7(4)	129	11.9	2.9	0.1(4)	7.9(6)	125	0.1(4)	4(2)
Dudley	1953-60	4	Limestone(PA)	200	17.4	0.23	60.9	4.3	1.5	154	17.0	8.0	Tr.(1)	7.4	172	0.0(2)	
Montrose	1936	1	Limestone(PA)	198	23.0					139	7.4	5.8		7.7			
Treutlen County																	
Soperton	1943	1	Limestone(PA)	205	26.0	0.28	53.0	9.2	9.1	208*	4.3	6.2		7.8	170	0.1	
Pulaski County																	
Hawkinsville	1956-59	4	Limestone(PA)			0.10	54.0			122	4.1	3.5		7.4	148		
Dodge County																	
Eastman	1938-60	6	Limestone(PA)	169(2)	29.5	0.05	45.5	2.2(2)	3.7	126	2.4	1.8	0.3(2)	7.5(4)	127	0.1(2)	
Milan	1936	1	Limestone(PA)	206		0.10				141	15.0		7.4		141		1
Montgomery County																	
Mt. Vernon	1943	1	Limestone(PA)	155	37.0	0.23	27.0	7.4	13.2	130	6.5	4.1		7.8	98	0.4	
Toombs County																	
Vidalia	1938-58	4	Limestone(PA)	169(1)	45.0(1)	0.01	30.9	5.9	12.2	116	4.0	4.0		7.8(3)	104		
Telfair County																	
McRae	1937-60	5	Limestone(PA)	240(1)	34.0(1)	0.12	54.4	8.6(1)	9.7(1)	153(4)	7.8	5.0	0.3(1)	7.6(4)	162		
Lumber City	1938	1	Limestone(PA)			0.50				142	5.0	6.0		7.5	135		5

(8/11/61)

TABLE 3-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
ALTAMAHA BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D)																	
Jeff Davis County Hazlehurst	1943	1	Limestone(PA)	171	29.0	0.04	34.0	4.3	20.9	154*	3.4	6.9		7.8	103	0.3	
Appling County Baxley	1943	1	Limestone(PA)	215	45.0	0.09	34.0	13.0	17.5	153*	22.0	9.6	0.0		138	0.4	
Wayne County Jesup County	1941	1	Limestone(PA)	215	40.0	0.03	29.0	16.0	19.4	155*	36.0	8.0			138	0.3	1
Glynn County Sea Island	1941	1	Limestone(PA)	317	38.0	0.08	40.0	25.0	24.1	144*	94.0	22.0	0.0		202	0.3	

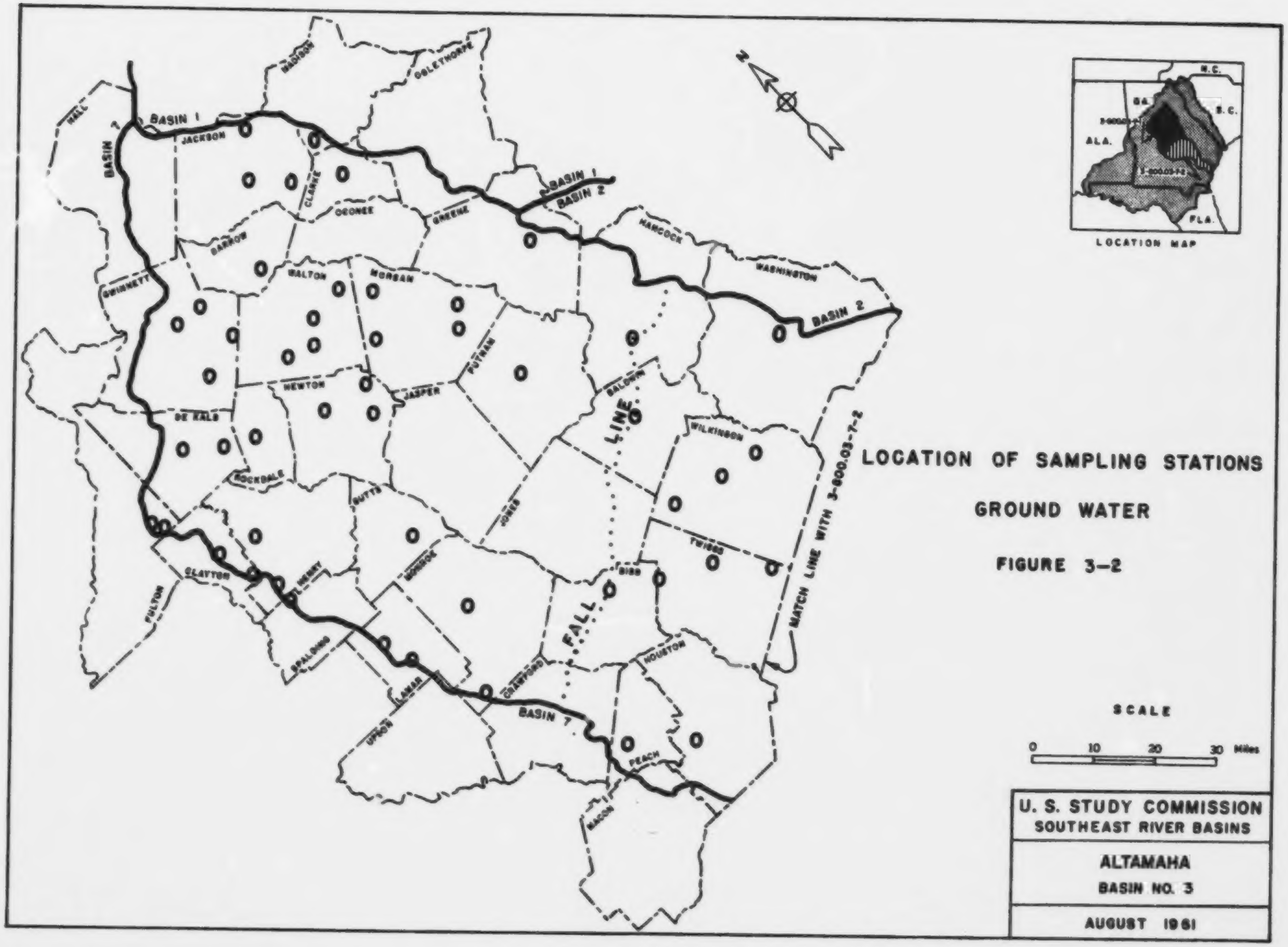
* As Bicarbonate

Note-Numbers in parentheses show number of analyses upon which average was computed if different that total number of analyses.

Legend:

(S) - School	Rock (C) - Crystalline Rock
(PW) - Private Well	Sand(Tu) - Tuscaloosa Formation
	Limestone (PA) - Principal Artesian

(8/11/61)


N
BASIN 1
BASIN 2
BASIN 7
HALL
JACKSON
MADISON
OGLETHORPE
CLARKE
OCONEE
GREENE
BARROW
WALTON
MORGAN
GWINNETT
NEWTON
JASPER
PUTNAM
HANCOCK
WASHINGTON
BALDWIN
DE KALB
ROCKDALE
BUTTS
JONES
WILKINSON
TWIGGS
FULTON
CLAYTON
HENRY
SPALDING
MONROE
LAMAR
UPSON
CRAWFORD
BIBB
HOUSTON
PEACH
MACON
FALL LINE
MATCH LINE WITH 3-600.03-7-2
N.C.
GA.
S.C.
ALA.
FLA.
3-600.03-7-2
3-600.03-7-3
LOCATION MAP
SCALE
0
10
20
30
Miles

LOCATION OF SAMPLING STATIONS

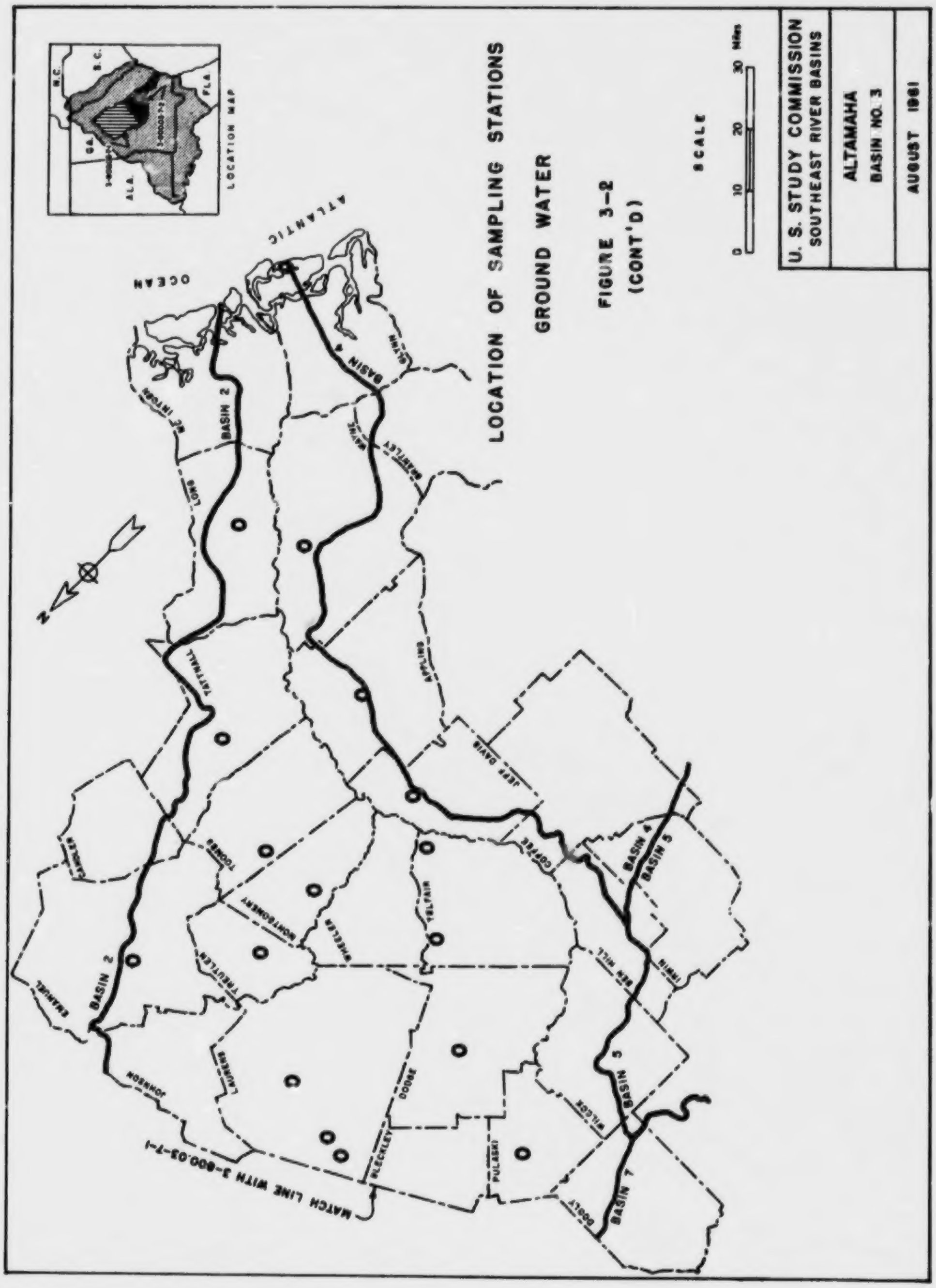
GROUND WATER

FIGURE 3–2

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

ALTAMAHA
BASIN NO. 3

AUGUST 1961


N
ATLANTIC
OCEAN
BASIN 2
BASIN 4
BASIN 5
BASIN 7
MC INTOSH
LONG
GLYNN
WAYNE
BRANTLEY
TATTNALL
APPLING
JEFF DAVIS
COFFEE
BEN HILL
IRWIN
WILCOX
PULASKI
DOOLY
TELFAIR
WHEELER
MONTGOMERY
TOOMBS
TREUTLEN
LAURENS
DODGE
BLECKLEY
JOHNSON
EMANUEL
CANDLER
MATCH LINE WITH 3-800.03-7-1
N.C.
S.C.
GA.
ALA.
FLA.
LOCATION MAP
SCALE
0
10
20
30 Miles

LOCATION OF SAMPLING STATIONS

GROUND WATER

FIGURE 3-2
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

ALTAMAHA
BASIN NO. 3

AUGUST 1961

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SATILLA - ST. MARYS BASIN

Surface Water

Data on the quality of surface waters in the Satilla - St. Marys Basin were quite limited. Tables 4-1 and 4-3 and Figure 4-1 show the type and coverage of the surface water data.

Chemical quality data were available at only five stations; two in Georgia on the main stem of the Satilla River and three in Florida, two of which were on the main stem of the St. Marys River. The data were obtained from reports of the U. S. Geological Survey and the Florida State Department of Conservation. The data presented are quite old, the last analyses being made in 1946. Because most of the data were collected in the 1920's and 1930's, they may not be representative of current conditions. As shown in Table 4-1 and 4-3, only chemical and radiological quality data were available. Data on the physical, bacteriological (sanitary), and radiological quality of the surface waters at an additional three stations in the Satilla - St. Marys Basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

The analyses of the waters of both the Satilla and St. Marys River were consistent. Total dissolved solids ranged from 49 to 80 ppm and hardness from 8 to 19 ppm. The individual chemical constituents reported were within the limits expected in surface water. Color in the Satilla River was high which was probably due to drainage from swampy areas which are prevalent in this basin.

Ground Water

The availability of ground water quality data in the Satilla - St. Marys Basin was good. Tables 4-2 and 4-3 and Figure 4-2 show the type and coverage of the ground water data.

Chemical analyses were available at twenty-seven stations in the basin. The stations were evenly distributed throughout the basin, with almost an equal number in each of the sub-basins. A number of the stations had long-term analyses records available, although about half of the stations had only three analyses made prior to 1940. However, good correlation was noted between analyses made at the same station. The data presented were obtained mainly from reports of the U. S. Geological Survey, the Florida State Department of Conservation, and the Florida State Board of Health.

The total dissolved solids content of the ground water supplies listed ranged from 119 to 557 ppm. All the stations, but one, reported hardness in excess of 100 ppm with a range of 92 to 348 ppm reported. Only four stations reported iron in excess of 0.3 ppm.

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It was noted that mineral content reported for the waters in Nassau County, Florida were higher than those for the remaining basin. The lowest dissolved solids concentration was reported to be 377 ppm with the remainder of the stations in the county reporting concentrations of 432 to 557 ppm. This increase in dissolved solids content was reflected in all the chemical constituents reported especially the sulfate and chloride fractions.

Data on the radiological quality of the ground water and also the surface waters of the basin is presented in Table 4-3. Radiological quality data was available for only the Florida portion of the basin and was obtained from a report of the Florida State Board of Health.

In the report referred to, the following statement was made concerning the radiological quality of the State's waters:

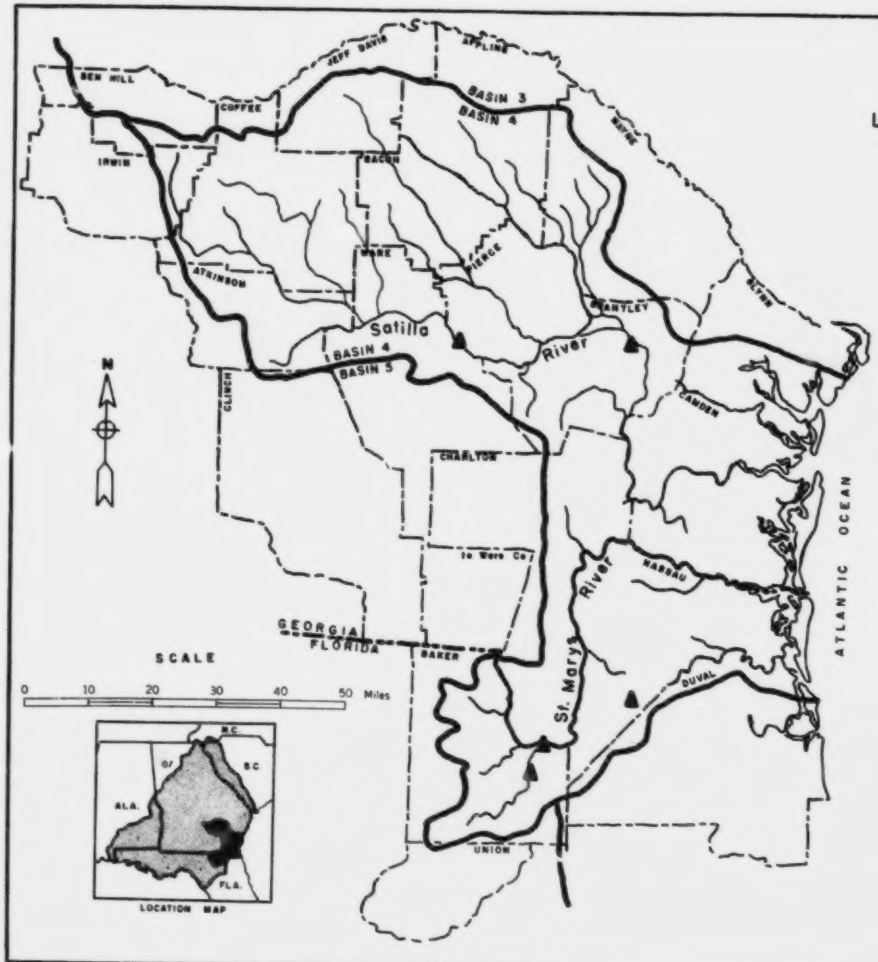
> (1) A marked decrease in the radioactivity of surface waters and rainfall became apparent in the late spring of 1959 and continued until the French weapons testing the latter part of February 1960. The activity from this testing dropped off by May 1960 and continues to be undetectable.
>
> (2) An increase in the activity of underground water has not been found.
>
> (3) A few areas in the state, principally the phosphate ore bearing regions, have shown a little more alpha activity in both surface and underground waters than other portions of the state. This activity is negligible and much below maximum permissible levels.

TABLE 4-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SATILLA-ST. MARYS BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses		Average Discharge (cfs)	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																		
Satilla River, near Waycross	1937-38	36	Avg.	457	49	5.8	0.08	1.6	1.0	4.5	6	2.0	6.1	0.1		8	0.0	90
Satilla River, at Atkinson	1937	1		324	51	8.0	0.12	1.4	1.1	4.8	5	2.1	7.0	0.1		8	0.0	90
FLORIDA																		
St. Marys River, north of Macclenny	1924	1			74	7.3	0.03	3.8	2.4	6.5	9	4.4	12.0	Tr.		19		
St. Marys River, at Macclenny	1924	1			80	9.4	0.02	3.4	1.7	8.5	7	2.1	12.0	Tr.		15		
Su-No-Wa Springs, at Verdie	1924-46	2	Avg.		49	5.6	0.49	7.4	3.5	3.4	36	2.4	6.5	0.1	5.8	33		

* As Bicarbonate

(8/11/61)


BEN HILL
COFFEE
JEFF DAVIS
APPLING
BASIN 3
BASIN 4
WAYNE
IRWIN
BACON
PIERCE
WARE
ATKINSON
BRANTLEY
GLYNN
Satilla
River
BASIN 4
BASIN 5
CLINCH
CAMDEN
CHARLTON
to Ware Co
NASSAU
St. Marys
River
GEORGIA
FLORIDA
BAKER
DUVAL
UNION
ATLANTIC OCEAN
N
SCALE
0
10
20
30
40
50 Miles
N.C.
S.C.
GA
ALA.
FLA.
LOCATION MAP

LOCATION OF SAMPLING STATIONS
SURFACE WATER
FIGURE 4—1

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SATILLA — ST. MARYS
BASIN NO. 4

AUGUST 1961

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TABLE 4-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
SATILLA-ST. MARYS BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analyses	Total No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA SATILLA																	
Ben Hill County																	
Fitzgerald	1938-60	6	Limestone(PA)	119(2)	22.5(2)	0.01	23.7	9.0(2)	4.0(2)	119(2)	1.2(1)	2.1	0.08(2)	7.9(4)	92.3	0.0(2)	
Coffee County																	
Nicholls	1938	1	Limestone(PA)	201	52.0	0.10	28.0	13.0	13.0	131	5.0	12.0		7.8	124	0.6	5
Douglas	1938-59	6	Limestone(PA)	286(2)	44.0(2)	0.02	54.8	19.0(2)	8.7(2)	146(2)	54.7(5)	4.7	0.05(2)	7.7(5)	203	0.4	4(1)
Broxton	1941	1	Limestone(PA)	203	46.0	0.10	29.0	14.0	17.9	160	21.0	7.6	0.05		130	0.4	2
Appling County																	
Baxley	1943	1	Limestone(PA)	215	45.0	0.09	34.0	13.0	17.5	156	22.0	9.6	0.0	7.9	138	0.4	0
Wayne County																	
Screven	1936	1	Limestone(PA)			0.40				109	17.0	13.0			115		5
Brantley County																	
Nahunta	1940	1	Limestone(PA)	254	35.0	0.63	36.0	19.0	16.0	153	52.0	14.0	0.20		168	0.5	
Glynn County																	
Brunswick	1931-51	7	Limestone(PA)	301(4)	37.4	0.14	44.3(4)	22.8(4)	15.1(4)	143	99.2(5)	19.6(5)	0.09(5)	7.5(5)	212(5)	0.7(4)	5(4)
Sea Island	1941-45	2	Limestone(PA)	311	32.5	0.55	43.5	26.0	12.0	136	91.0	17.0	0.0(1)	8.2	216	0.5(1)	2(1)
St. Simons	1950	1	Limestone(PA)	308	7.0	0.16	37.0	22.0		114	80.6	21.6		7.8	183		
Bacon County																	
Alma	1941	1	Limestone(PA)	203	46.0	0.10	29.0	14.0	17.9	160	21.0	7.6	0.05		130	0.4	2
Ware County																	
Waycross	1938-60	9	Limestone(PA)	250(3)	45.4(5)	0.07	40.8(7)	16.3(3)	18.4(3)	160(5)	46.7	12.8	0.08(3)	7.6(7)	169	0.4(3)	2(1)
Charlton County																	
Folkston	1940	1	Limestone(PA)	481	33.0	0.28	75.0	32.0	25.7	194	153.0	36.0	0.1		319	0.4	
Camden County																	
Kingsland	1938-40	2	Limestone(PA)	528	29.0	0.20	78.5	30.0	24.1(1)	183	161	34.0	0.10(1)		348(1)	0.5	
FLORIDA ST. MARYS																	
Duval County																	
Baldwin	1937-50	3	Limestone(PA)	253	25.7	Tr.(1)	53.3	15.0	13.0	216	20.0(2)	22.3	Tr.(2)	7.1(1)	194		

Revised (8/1/61)

TABLE 4-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
SATILLA-ST. MARYS BASIN
(All values in ppm except pH and color)

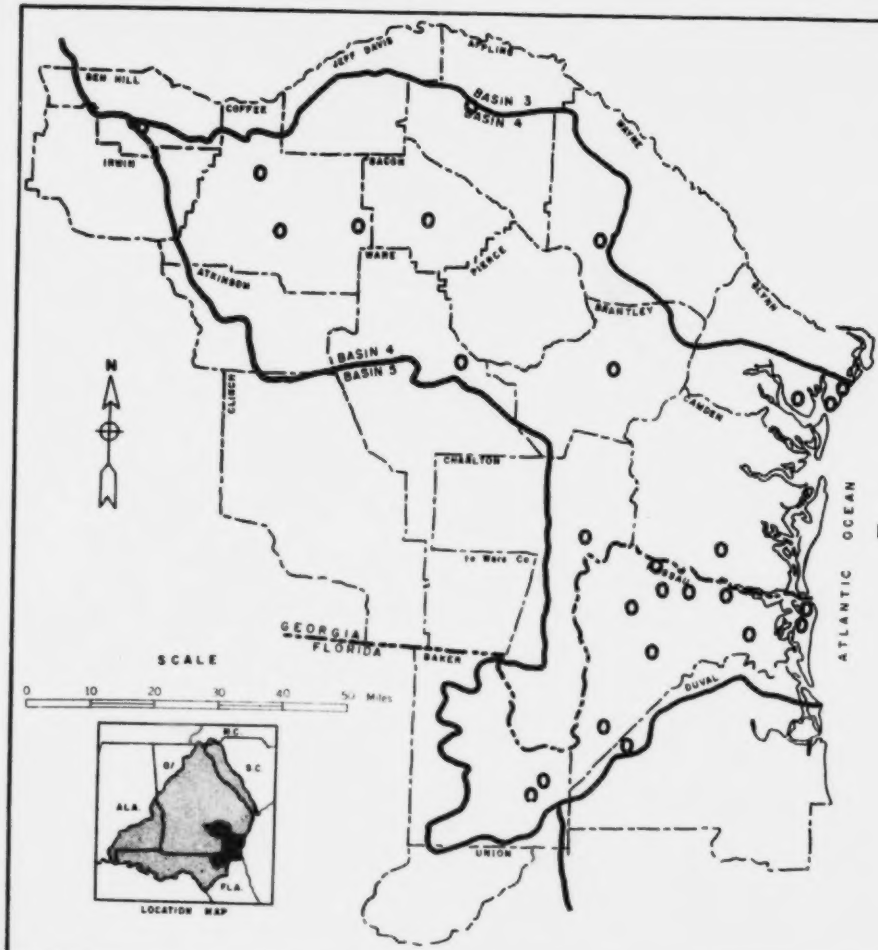
Sampling Station	Period of Analyses	Total No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA (CONT'D)																	
ST. MARYS																	
Baker County																	
Glen St. Mary	1924	1	Limestone(PA)	188	24.0	Tr.	34.0	19.0	8.7	194	4.7	10.0	Tr.		163		
Macclenny	1942-59	12	Limestone(PA)	185	19.0(4)	0.16(9)	32.6	13.0	11.0(5)	149	23.8	12.6	Tr.(1)	7.7	137	0.6(5)	4(8)
Nassau County																	
Callahan	1910-59	9	Limestone(PA)	432	33.3(7)	0.07(5)	63.6	29.6	23.0(7)	195	111.2	25.6	0.16(2)	7.5(8)	281	0.6(2)	10(2)
Hilliard	1910-59	10	Limestone(PA)	450(9)	34.7(7)	0.18(7)	64.0	30.9(9)	21.3(7)	200	120.0	28.8	Tr.(1)	7.5(9)	287	0.6(9)	7(3)
Fernandina	1924-59	28	Limestone(PA)	487(22)	31.5(12)	0.16(22)	68.9(25)	35.8(25)	23.6(16)	193	145	36.0		7.4(23)	320	0.6(11)	5(16)
Bryceville	1937-50	3	Limestone(PA)	377	27.0	0.21	93.7	12.0	23.7	342(1)	32.4	19.3	Tr.(2)		284		
Yulee	1942-59	3	Limestone(PA)	437	33.0(2)	0.69(3)	73.9	30.6	15.7(3)	229	141	26.2	Tr.(1)	7.4	309	0.3(2)	10(1)
Crandall	1950	1	Limestone(PA)	493	29.0		66.0	39.0	38.0	217	169.0	38.0		7.5	326		
Kings Ferry	1950	1	Limestone(PA)	522	36.0	0.0	75.0	38.0	28.0	217	171.0	34.0		7.5	340		
Leslie	1950	1	Limestone(PA)	495	34.0	0.0	70.0	35.0	27.0	215	152	34.0		7.5	322		
Gross	1950	1	Limestone(PA)	509	34.0		73.0	38.0	31.0	215	173	36.0		7.3	336		
Fort Clinch	1959	3	Limestone(PA)	557		0.04	73.3	34.3		187	206	33.7		7.4	327	0.6	5

*As Bicarbonate

Note-Number in parentheses shows number of analyses upon which average was computed if different than total number of analyses.

Legend:
Limestone(PA)-Principal artesian

Revised (8/1/61)


BEN HILL
COFFEE
IRWIN
JEFF DAVIS
APPLING
BASIN 3
BASIN 4
WAYNE
BACON
WARE
PIERCE
ATKINSON
BRANTLEY
GLYNN
BASIN 4
BASIN 5
CLINCH
CAMDEN
CHARLTON
To Ware Co.
NASSAU
GEORGIA
FLORIDA
BAKER
DUVAL
UNION
ATLANTIC OCEAN
N
SCALE
0
10
20
30
40
50 Miles
N.C.
S.C.
GA
ALA
FLA
LOCATION MAP

LOCATION OF SAMPLING STATIONS

GROUND WATER

FIGURE 4-2

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

SATILLA — ST. MARYS
BASIN NO. 4

AUGUST 1961

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TABLE 4-3
RADIOACTIVITY IN WATER
SATILLA - ST. MARYS BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters									
St. Marys River - Georgia Line N. W. McClenny	1959-60	2	0.3(1)			134.5	248.9	20.0	
Container Corp. of America Pond - Nassau County	1960	4	3.9(2)	4.5	3.3	5.4	11.2	0.9	
Drainage Ditch - Hilliard Highway 301	1960	1	0.4			6.8			Partly Spring fed.
Florida Ground Waters									
Hilliard Municipal Well	1960	1				17.4			Deep well, 900'; finished water
McClenny Well	1959	1				1.3			Deep well
McClenny Tap Water	1960	1	1.1			1.1			Finished Water
Fort Clinch, Jetty Lodge	1959	1	0.1			6.5			
Fort Clinch, Picnic Area	1959	1				2.1			
R. N. Youngs' Inc.	1959	1	0.5			27.0			Shallow Well

Note: Number in parenthesis show number of anlyses upon which the average was computed if different than total number of analyses.
(8/15/61)

SUWANNEE BASIN

Surface Water

Data on the surface water quality of the Suwannee Basin were somewhat limited especially in Georgia. Tables 5-1 and 5-3 and Figure 5-1 show the extent and coverage of the surface water data.

Chemical quality data were available at thirteen stations only four of which were on surface streams. The remaining nine stations were at springs located in the Florida portion of the basin. Except for one station, most of the data were collected 15 to 20 years ago. However, good correlation was noted between analyses made several years apart. As these analyses were of the spring waters, the correlation was not too unusual. The data presented were obtained mainly from reports of the Florida State Board of Conservation and the U. S. Geological Survey.

As shown in Tables 5-1 and 5-3, only chemical and radiological quality data were available. Data on the physical, bacteriological (sanitary), and radiological quality of the surface waters at an additional four stations in the Suwannee Basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

The total dissolved solids reported at the two stations located on the Alapaha River ranged from 35 to 45 ppm and hardness was reported as 7 and 8 ppm. In contrast, the average total dissolved solids content at the station on the Suwannee River ranged from 150 to 194 ppm with a maximum of 224 ppm recorded. The average hardness at this station ranged from 121 to 175 ppm with a maximum of 212 ppm. The vast differences in chemical quality between these stations can be attributed either to the period of time separating the analyses or to some natural or artificial source of highly mineralized water entering the stream between these stations. The iron content of the surface streams ranged from 0.0 to 0.36 ppm, both extremes being reported at the same station.

The total dissolved solids of the spring waters ranged from 147 to 1207 ppm. The next highest solids content was reported to be 231 ppm. The station reporting the high dissolved solids content also reported a hardness of 402 ppm and iron content of 3.4 ppm. The remaining stations reported hardness ranging from 134 to 213 ppm and an iron content of 0.02 to 0.22 ppm. The relatively high mineral content of the spring water can be attributed to the limestone aquifers from which they flow.

Ground Water

The data available on the quality of ground water in the Suwannee Basin were somewhat limited, especially in Georgia. Table 5-2 and 5-3 and Figure 5-2 show the extent and coverage of the ground water data.

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Chemical quality data were available at thirty-three stations within the basin, only seven of which were in Georgia. Distribution of the stations in the Florida portion of the basin was good except in the centrally located counties.

A number of the stations had long-term analyses records available ranging over a period of 20 to 30 years with individual results at the same stations showing good correlation. The data presented were obtained mainly from reports of the Florida State Board of Health, the Florida State Department of Conservation, the Georgia Department of Mines, Mining, and Geology and the U. S. Geological Survey.

The total dissolved solids of the limestone waters ranged from 109 to 966 ppm and hardness ranged from 80 to 440 ppm. The station reporting the high dissolved solids content also reported excessively high concentrations of sodium,potassium, and chlorides. Eleven stations reported iron concentrations in excess of 0.3 ppm with one station reporting a maximum of 2.27 ppm. The concentrations of other chemical constituents appeared to be within the normal levels expected of limestone ground waters.

Data on the radiological quality of the ground waters and also the surface waters of the basin are presented in Table 5-3. Radiological quality data were available for only the Florida portion of the basin and were obtained from a report of the Florida State Board of Health.

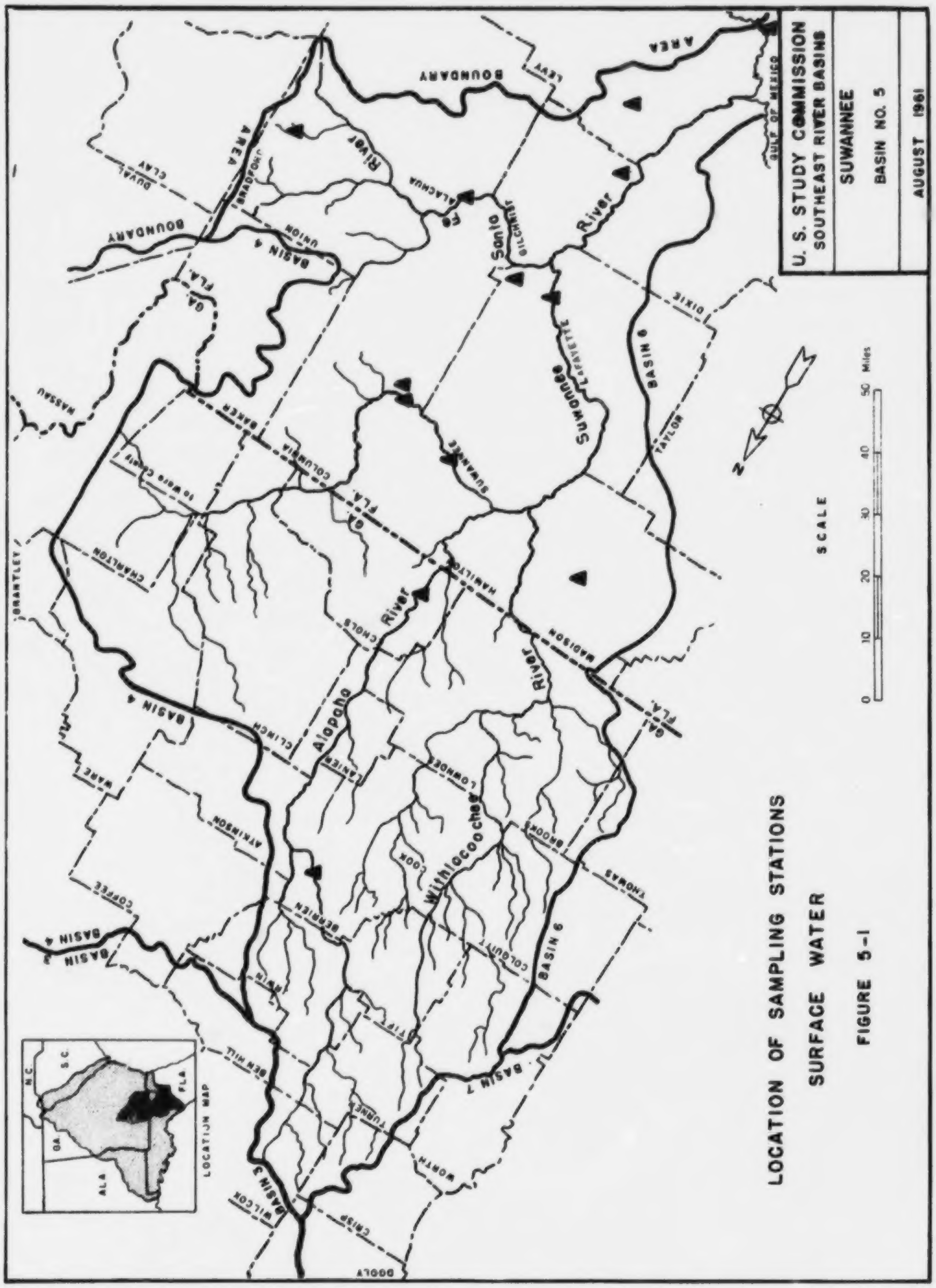
In the report referred to, the following statement was made concerning the radiological quality of the State's waters:

> (1) A marked decrease in the radioactivity of surface waters and rainfall became apparent in the late spring of 1959 and continued until the French weapons testing the latter part of February 1960. The activity from this testing dropped off by May 1960 and continues to be undetectable.
>
> (2) An increase in the activity of underground water has not been found.
>
> (3) A few areas in the state, principally the phosphate ore bearing regions, have shown a little more alpha activity in both surface and underground waters than other portions of the state. This activity is negligible and much below maximum permissible levels.

TABLE 5-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
SUWANNEE BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analysis	No. of Analyses		Average Discharge (cfs)	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
Alapaha River, near Alapaha	1937	1		577	35	3.1	0.05	1.4	0.9	3.1	7	1.3	4.2	0.3		7	0.0	58
Alapaha River, at Statenville	1937	1		235	45	8.2	0.24	1.5	1.2	3.4	5	1.8	5.0	0.1		8	0.0	60
Suwannee River, at Branford	1954	26	Avg.	4286	176	10.4	0.07	40.8	8.7	4.5	145	16.5	5.7	0.6	7.8	153	0.2	41
			Max.	14400	224	20.0	0.24	49.0	12.0	6.6	184	23.0	8.0	1.1	8.2	186	0.2	130
			Min.	2000	88	5.8	0.0	11.0	2.4	3.3	38	4.2	4.5	0.2	7.0	43	0.1	6
	1954-55	36	Avg.	1950	194	12.0	0.07	44.0	10.0	5.1	159	21.0	7.8	0.6	7.6	171	0.2	41
			Max.	4022	224	22.0	0.36	51.0	13.0	7.2	182	24.0	15.0	1.4	8.0	212	0.4	450
			Min.	1595	139	7.8	0.0	18.0	4.3	3.8	65	10.0	4.5	0.0	7.1	72	0.1	10
	1955-56	36	Avg.	2992	169	10.0	0.13	38.0	7.6	4.9	131	15.0	6.8	0.5	7.5	145	0.3	90
			Max.	8727	211	14.0	0.34	53.0	13.0	6.6	174	22.0	10.0	2.1	7.8	199	0.4	200
			Min.	1554	74	6.8	0.01	14.0	1.9	3.0	24	3.5	5.0	0.0	6.5	32	0.1	15
	1956-57	35	Avg.	4105	150	8.4	0.08	31.0	6.9	4.3	111	14.0	6.8	0.1	7.2	121	0.2	81
			Max.	11960	214	13.0	0.22	45.0	15.0	5.8	170	24.0	9.0	0.5	8.1	174	0.4	250
			Min.	1669	74	4.1	0.0	5.0	1.3	2.5	17	3.2	4.2	0.0	5.6	22	0.1	7
Santa Fe, at High Springs	1924	1			190	9.7	0.27	41.0	7.0	8.6	122	35.0	10.0	Tr.		131		
Blue Springs, at Madison	1946	1			147	9.2	0.04	39.0	8.7	2.8	148	10.0	3.6	1.5	7.6	134		
Springs at White Springs	1942-48	2	Avg.		186		0.22	41.0	11.0		176	2.5	6.0		7.2	141	0.3	33
Springs at Suwannee Springs	1924-48	3	Avg.		211	13.0	0.14	48.6	10.6	5.5	178	17.7	7.4	0.0	7.7	173		
Heilbronn Spring, at Starke	1924-48	2	Avg.		199	22.5	0.02	37.5	18.5	8.4	154	1.5	13.5	Tr.	8.0	170		
Hart Springs, at Wilcox	1946	1			200	5.2	0.05	67.0	4.8	2.4	208	12.0	3.8	2.3	7.3	186		
Poe Springs, at High Springs	1924-46	2	Avg.		207	8.3	0.06	64.5	5.6	5.3	203	13.5	6.9	0.3	7.3	184		
Ichatucknee Springs, at Hildreth	1908-46	2	Avg.		200	7.0	0.03	61.0	6.2	41.7	311	9.0	4.5	1.0	7.4	178		
Manatee Springs, at Chiefland	1946	1			231	5.8	0.06	75.0	6.3	3.1	223	23.0	5.1	1.7	7.4	213		
Dorsett Springs, at Cedar Key	1943-60	2	Avg.		1207		3.04	101.0	34.5		274	57.5	452.0		7.1	402	0.3	67

(8/11/61) * As Bicarbonate


U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
SUWANNEE
BASIN NO. 5
AUGUST 1961
SCALE
0 10 20 30 40 50 Miles
N
GULF OF MEXICO
BOUNDARY
AREA
BASIN 4
BASIN 3
BASIN 6
BASIN 7
GA.
FLA.
Santa Fe River
Suwannee River
Alapaha River
Withlacoochee River
NASSAU
DUVAL
CLAY
BRADFORD
UNION
ALACHUA
GILCHRIST
LEVY
DIXIE
LAFAYETTE
TAYLOR
MADISON
HAMILTON
SUWANNEE
COLUMBIA
BAKER
CHARLTON
BRANTLEY
WARE
CLINCH
ECHOLS
LANIER
LOWNDES
BROOKS
THOMAS
COLQUITT
COOK
BERRIEN
ATKINSON
COFFEE
IRWIN
TIFT
BEN HILL
TURNER
WORTH
WILCOX
CRISP
DOOLY
LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 5-1

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TABLE 5-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
SUWANNEE BASIN
(All values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA																	
Turner County																	
Ashburn	1958	1	Limestone(PA)	289	33.0	0.26	53.0	16.0	6.0	144	87.0	4.0	0.1	7.7	198	0.3	
Worth County																	
Sylvester	1958	1	Limestone(PA)	180	26.0	0.07	45.0	7.4	4.6	190	1.8	3.2	0.2	7.8	143	0.2	
Tift County																	
Tifton	1946-58	6	Limestone(PA)	156(3)	18.7(3)	0.05	44.5	8.0(3)	4.0(3)	151	2.3	3.7	0.1(3)	7.8(4)	142	0.1(3)	
Tifton (PW)	1958-59	3	Unknown	156	14.0	0.20(2)	46.0(1)	11.6(1)	16.0(2)	121	4.7	3.3		7.3	124		2(2)
Colquitt County																	
Moultrie	1956-58	3	Limestone(PA)			0.0	29.7			91	45.0	8.9		7.7	132		
Cook County																	
Adel	1958	1	Limestone(PA)	289	33.0	0.26	53.0	16.0	6.0	144	87.0	4.0	0.1	7.7	198	0.3	
Lowndes County																	
Valdosta	1941-60	6	Limestone(PA)	121(2)	13.5(2)	0.01	25.5	3.6(2)	4.2(2)	68	10.2	6.7	0.2(2)	7.4(5)	80	0.3(2)	
Valdosta (PW)	1959	1	Unknown	123	10.0	0.30	27.2	7.7		90	0.0	2.0			100		
Brooks County																	
Quitman	1938-58	2	Limestone(PA)	154	16.5	0.01	40.0	9.2	3.2	179	1.9	3.7	0.3	7.8(1)	142	0.1	
Quitman (PW)		1	Unknown	134	10.0	0.40	31.2	10.2	14.0	130	0.0	3.0		7.5	120		4
FLORIDA																	
Baker County																	
Olustee	1941	2	Limestone(PA)	233		0.9	42.0	20.5	8.0	237	0.0	8.6		7.7	198		
Madison County																	
Madison	1923-60	7	Limestone(PA)	155(3)	14.0(1)	0.17	44.7	7.6(3)	3.0(2)	144	1.9	5.3	Tr.(1)	7.7(6)	145		
Cherry Lake Farm (PW)	1949	2	Limestone(PA)	143			52.5	2.0		170	0.0	5.0		7.6	139	0.3	5
Greenville	1949-59	6	Limestone(PA)	207		0.81	62.2	9.7	0.0(1)	232	6.3	8.5		7.2	197	0.1(3)	10(5)
Pinetta (PW)	1957	2	Unknown	210		0.15	45.5	5.0		154	13.5	13.5		7.6	135		5
Hamilton County																	
Jennings	1924-59	3	Limestone(PA)	180	25.0(1)	0.13	36.0	11.7	1.9(2)	149	17.3	3.7	Tr.(1)	7.4(2)	139	0.2(1)	10(1)
Jasper	1924-59	6	Limestone(PA)	514	25.0(1)	0.32	82.5	34.3	19.1(2)	235	146.3	10.8	0.0(2)	7.5(5)	348	0.3(4)	5(4)
White Springs	1949-59	4	Limestone(PA)	228	29.0(1)	0.04(3)	45.5	17.8	7.2(2)	229	6.8	8.0	Tr.(1)	7.4(3)	187	0.2(2)	5(2)
Columbia County																	
Lake City	1907-60	36	Limestone(PA)	211(32)	24.5(14)	0.08(25)	42.0	14.0(32)	9.7(15)	199	5.1(29)	8.4	Tr.(2)	7.6(31)	164	0.3(8)	15(8)
Lafayette County																	
Mayo	1939-59	6	Limestone(PA)	273	8.5(2)	2.27	63.2	13.8	6.5(3)	264	2.7	5.8	Tr.(2)	7.2(5)	214	1.0(2)	60(2)
Alton (PW)	1923	1	Limestone(PA)	260	12.0	1.10	68.0	15.0	7.8	287	3.8	6.2	2.0		232		

Revised (8/1/61)

TABLE 5-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
SUWANNEE BASIN
(All values in ppm except pH and color)

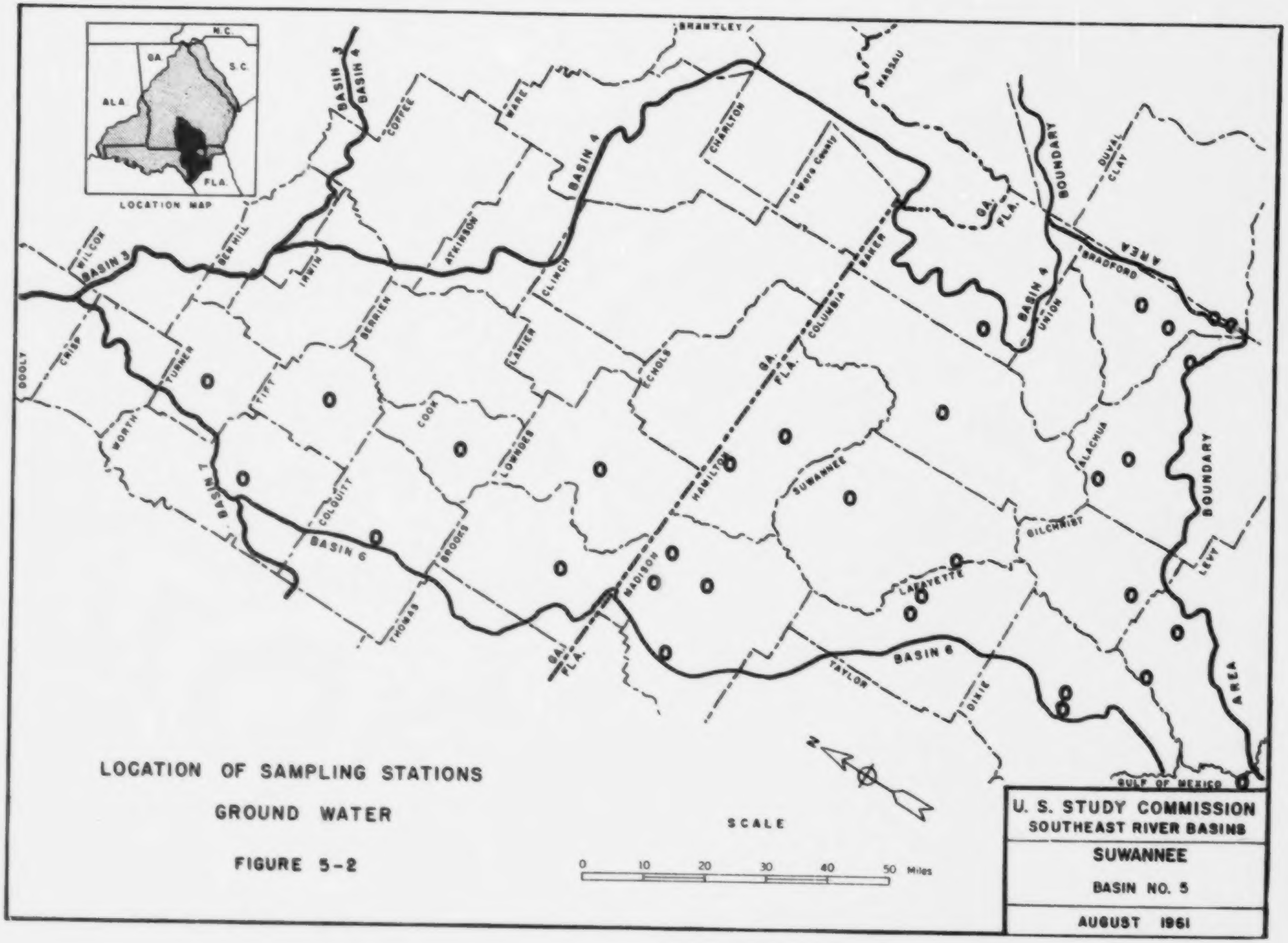
Sampling Station	Period of Analyses	No. of Analyses	Descr. Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity*	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA (CONT'D)																	
Suwannee County																	
Live Oak	1907-60	12	Limestone(PA)	357(10)	16.3(3)	0.08	82.1	24.2(10)	10.9(4)	199	68.7	10.7	1.5(2)	7.3(9)	232	0.2(5)	7(5)
Branford	1943-58	6	Limestone(PA)	372		0.17	65.8	23.5	7.5(2)	247	81.0	14.0		7.3	248	0.1(5)	[illegible](4)
Bradford County																	
Hampton	1949-60	3	Limestone(PA)	247		0.07	39.0	20.7		195	12.7	20.0		7.5	185	0.1	5
Starke	1907-56	9	Limestone(PA)	231	31.7(3)	0.14	41.2	17.1	13.0(3)	214	8.0	15.1	Tr.(1)	7.5(6)	173	0.3(5)	5(2)
Dixie County																	
Shamrock (PW)	1941-57	3	Limestone(PA)	266(2)		1.86	81.0	8.2	10.6(2)	293	3.3	9.7		7.9	238	0.1(1)	
Cross City (PW)	1941-49	5	Limestone(PA)	260	3.5(2)	2.76	97.6	6.1	14.4(3)	252	1.9	5.4		7.2	269	0.1(1)	13(1)
Gilchrist County																	
Trenton	1937-59	9	Limestone(PA)	213	16.0(2)	0.43	59.0	7.4	4.0(3)	218	4.0	5.5		7.5	178	1.2(2)	6(6)
Alachua County																	
Alachua	1924-59	5	Limestone(PA)	352	17.0(1)	0.11(4)	76.2	18.6	4(1)	193	122.0	12.6		7.6(4)	272	0.3(3)	5(2)
High Springs	1946-59	5	Limestone(PA)	250		0.43	65.2	7.0(2)		179	66.8	13.0		7.6	192	0.3(2)	9
High Springs	1935-40	2	Unknown	841	23.0	0.20	155.0	45.5	[illegible].0	253	349.0	39.5	Tr.	7.1(1)	574		
Waldo	1951-59	2	Limestone(PA)	219		0.05	48.5	17.5		220	53.5	10.5		7.8	192	0.2	5
Clay County																	
Keystone Hts.	1941-60	6	Limestone(PA)	109	11.0(3)	0.05	21.8	7.7	5.0(5)	97	3.0	7.0	Tr.(1)	7.6	86	0.1(1)	
Lake Geneva	1950	1	Limestone(PA)	148	14.0	Tr.	27.0	15.0	35.0	166	4.1	10.0		7.2	128		
Levy County																	
Chiefland	1948	1	Limestone(PA)	256			59.0	6.7	12.0	180	7.4	35.0		7.1	176		
Manatee Sprs.	1957	1	Limestone(PA)	595		0.06	146.0	18.0		249	216.0	15.0		7.1	440	0.4	5
Cedar Keys	1943-60	7	Limestone(PA)	966		1.36	76.6	23.4	502.5(2)	188	61.7	370.7		6.8	293	0.2(6)	29(5)
Cedar Keys (PW)	1943	3	Unknown	157		1.72	35.0	10.4	4.0	142	0.0	14.7		6.9	131		

* As Bicarbonate

Note-Number in parentheses shows number of analyses upon which the average was computed if different than total number of analyses.

Legend:
Limestone(PA)-Principal artesian.

Revised (8/1/61)



LOCATION OF SAMPLING STATIONS
GROUND WATER

FIGURE 5-2

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
SUWANNEE
BASIN NO. 5
AUGUST 1961
SCALE
0
10
20
30
40
50 Miles
N
LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
BASIN 3
BASIN 4
BASIN 6
BASIN 7
BOUNDARY
AREA
GA.
FLA.
GULF OF MEXICO
DOOLY
CRISP
WILCOX
BEN HILL
TURNER
WORTH
TIFT
IRWIN
COFFEE
WARE
BRANTLEY
CHARLTON
To Ware County
NASSAU
DUVAL
CLAY
BRADFORD
UNION
BAKER
COLUMBIA
ATKINSON
BERRIEN
CLINCH
LANIER
ECHOLS
COOK
COLQUITT
LOWNDES
BROOKS
THOMAS
HAMILTON
MADISON
SUWANNEE
ALACHUA
GILCHRIST
LEVY
LAFAYETTE
TAYLOR
DIXIE

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TABLE 5-3
RADIOACTIVITY IN WATER
SUWANNEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters									
Suwannee River, Vista	1960	1	0.8			6.6			Taken at mid-channel
Suwannee River, Fowler's Bluff	1960	1	0.2			12.3			Levy Co.
Alligator Lake, Hwy 100	1958	3	0.5(2)	0.8	0.3	44.3	77.0	9.9	
Cherry Lake	1958	1	0.1			14.9			
Corbetts Lake, Hwy 141	1958	1	0.1			28			
Itchtucknee River, U. S. Hwy 27	1958	2	0.4(1)			1.2	1.4	1.0	
Lake Jeffrey	1958	1	0.3			44			
Lake Lona	1958	1	0.5			82			
Lake Francis, Madison	1958	1				17			
Octahatchee Lake	1958	1	0.2			30			S.W. corner
Rose Creek, Hwy 441	1958	1	0.1			32			Drains into sink hole.
Spring - 7th Day Advent. Camp, Hwy 441, Olena Park	1958-59	2	0.8(1)			31.8	63	0.7	
Spring - Hwy 136, road to Hamilton	1958	1	0.4			50			
Spring - Adams Bridge on Hwy 51, Luraville	1958	1				33			

(8/15/61)

TABLE 5-3 (CONT'D)
RADIOACTIVITY IN WATER
SUWANNEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters (Cont'd)									
Suwannee River at Dixie - Levy Line, Hwy 98, Old Town	1958	1	0.4			5.3			
Suwannee River, Hwy 90, Ellaville	1959	1	0.8			63			
Florida Ground Water									
Levy County, off State Hwy 347, Hudson well	1960	1	1.2			4.9			Shallow well, 35 feet
Levy County, off Hwy 345 Darby well	1960	2	3.7	3.7	3.7	14.5	19.3	9.7	Shallow well
Levy County, Hwy 19 and 98 between Fannin Springs and Chiefland-J.D. Matthews well	1960	1	1.4			2.6			Shallow well, 40 feet
Vista Fish Camp, Suwannee R.	1960	1	5.5			13.2			Shallow well, 40 feet
Lake Butler, well No. 1	1959	1				5.2			
Cherry Lake, Utilities Well	1958	1				0.7			
Greenville Municipal Well	1958	1	0.2			2.6			
Jasper Municipal Well	1958	1				0.7			
Madison, Conway Quarters Well	1958	1				2.9			Deep well
Mayo Municipal Well	1958	1				2.1			Finished water
Old Town, Std. Ser. Sta. well	1958	1	0.4			1.0			

(8/15/61)

TABLE 5-3 (CONT'D)
RADIOACTIVITY IN WATER
SUWANNEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Ground Water (Cont'd)									
Raiford Prison well, at powerhouse	1959	1				4.7			
Raiford Prison well, Irrigation Plant	1959	1				3.7			
White Springs Municipal well	1958	1	0.1			5.6			
Wilcox private well	1958	1	0.2			1.2			

Note: Number in parentheses shows number of analyses upon which the average was computed if different than the total number shown.

(8/15/61)

OCHLOCKONEE BASIN

Surface Water

Data on the quality of surface waters in the Ochlockonee Basin were somewhat limited. Tables 6-1 and 6-3 and Figure 6-1 show the type and coverage of the surface water data.

Chemical quality data were available at fifteen stations, only one of which was in the Georgia portion of the basin. Of the fifteen stations, only six were located on streams and of these, two were on the main stem of the Ochlockonee. The data were obtained mainly from reports of the U. S. Geological Survey, the Florida State Department of Conservation, and the Florida State Board of Health. The data presented were collected mostly in the 1940's and 1950's.

As shown in Tables 6-1 and 6-3, only chemical and radiological quality data were available. Data on the physical, bacteriological (sanitary), and radiological quality of the surface waters at an additional station in the Ochlockonee Basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

As would be expected, the springs in the basin were more highly mineralized than the streams. Total dissolved solids ranged from 15 to 1080 ppm and hardness was reported as high as 821 ppm. The iron content of the spring waters was low, however, with only one station reporting a concentration in excess of 0.3 ppm. The relatively high mineral content of the spring waters is attributed to the limestone aquifers from which they flow.

The stream waters in the basin were relatively soft with the exception of two stations near the Coast in the Fenholloway sub-basin. The hardness at these two stations were 133 and 152 ppm, whereas the hardness at the other stations ranged from 8 to 39 ppm. The dissolved solid concentrations were low except for these same two stations. The iron content of the stream waters was higher than the spring waters with all but two stations reporting concentrations of 0.3 ppm or greater.

Ground Water

The availability of ground water quality data in the Ochlockonee Basin was good especially in the Florida portion. Tables 6-2 and 6-3 and Figure 6-2 show the type and coverage of the ground water data.

Chemical analyses were available at fifteen stations, four of which were in the Georgia portion of the basin. The data presented were obtained mainly from reports of the Florida State Board of Health, the Florida State Board of Conservation, and the Georgia Department of Mines, Mining, and Geology. Analyses at several of the stations were performed over long periods with most of them being made in the late 1940's and 1950's.

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With the exception of the five stations located in Franklin County, and two in Taylor County, Florida, the analyses presented were of water from limestone aquifers. The total dissolved solid content of these waters ranged from 139 to 1030 ppm. The value of 1030 ppm was reported in 1938 with a more recent analysis at this station showing a dissolved solids content of 605 ppm. This same station reported a hardness of 621 ppm in 1938 which was the highest reported. Excluding this value, the hardness of the limestone waters ranged from 88 to 335 ppm. Five of the stations reported an iron content in excess of 0.3 ppm. Of these, two of the stations in Taylor County and one in Dixie County, Florida reported iron ranging from 1.07 to 2.0 ppm. Other mineral constituents appeared to be within the normal range expected of limestone waters.

The analyses of the waters taken from shallow wells were too varied to make any general statement concerning their quality. One of the coastal stations reported a dissolved solids content of 2475 ppm and a chloride content of 1185 ppm.

Data on the radiological quality of the ground waters and also the surface waters of the basin are presented in Table 6-3. Radiological quality data were available for only the Florida portion of the basin and were obtained from a report of the Florida State Board of Health.

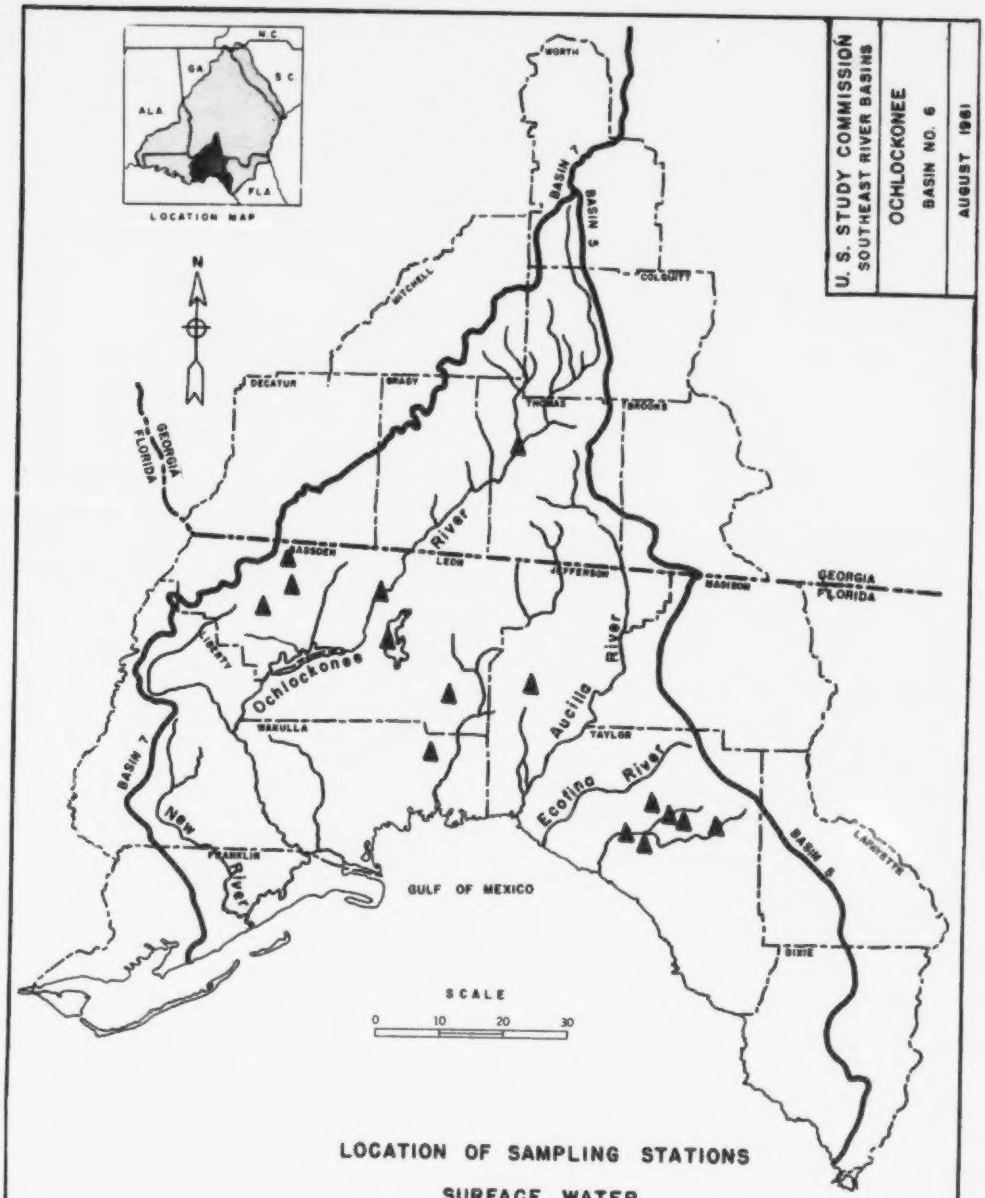
In the report referred to, the following statement was made concerning the radiological quality of the State's waters:

> (1) A marked decrease in the radioactivity of surface waters and rainfall became apparent in the late spring of 1959 and continued until the French weapons testing the latter part of February 1960. The activity from this testing dropped off by May 1960 and continues to be undetectable.
>
> (2) An increase in the activity of underground water has not been found.
>
> (3) A few areas in the state, principally the phosphate ore bearing regions, have shown a little more alpha activity in both surface and underground waters than other portions of the state. This activity is negligible and much below maximum permissible levels.

TABLE 6-1
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
OCHLOCKONEE BASIN
(values in ppm except color and pH)

Sampling Station	County	Period of Analyses	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA																
Lakes																
Lake Jackson	Leon	1924	17	0.80	0.07	1.6	0.9	2.7	3.7	1.9	5.0	1.0		8.0		
Streams																
Quincy Creek	Gadsden	1954	48			3.2	2		17	10	30		6.9	16	0.25	30
Quincy Creek	Gadsden	1949	25		0.86	6.0	0	0	12	0	4		6.7	14		
Ochlockonee River	Leon	1940	78		0.30	10	3.5	9.2	44	2.9	13		6.7	39		
Ochlockonee River	Leon	1940	40		1.6	0.2	3.0	14	22	0.0	14		6.8	13		
Fenholloway River	Taylor	1946	171	3.2	0.45	32	13	4.1	161	6.1	3		7.4	133		
Rocky Creek	Taylor	1946	182	3.5	0.6	38	14	4.8	182	9.8	3		7.6	152		
Springs																
Gadsden City	Gadsden	1956-60							44	0.5	3.2			68		
Glen Julia	Gadsden	1946	15	4.6	0.08	0.5	0.4	2.2	3.0	0.20	3.1	0.7	5.7	2.9		
National Bridge	Leon	1946	137	11	0.05	35	6.5	3.6	128	7.1	5.0	1.2	7.4	114		
Wacissa	Jefferson	1946	181	12	0.08	52	8.6	3.6	191	6.7	5.1	0.03	7.4	165		
Wakulla	Wakulla	1924	167	16	Tr.	39	9.6	5.7	154	11	8.0	Tr.		137		
Wakulla	Wakulla	1946	155	12	0.09	38	9.5	4.3	152	9.3	5.1	1.0	7.9	134		
Fenholloway	Taylor	1954	300		0.0	57	22		160	58	10		7.3	236	0.25	20
Fenholloway	Taylor	1955	312		0.0	63	23		232	67	11			248	0.65	45
Hampton	Taylor	1923	914	15	0.10	162	72	6.6	294	440	10	Tr.		700		
Hampton	Taylor	1946	1080	10	0.13	189	85	8.2	288	557	8.8	0	6.9	821		
Powell	Taylor	1946	149	3.1	0.30	35	14	12	185	2.2	5.0		7.4	145		
Waldo	Taylor	1946	223	5.2	0.80	52	20	11	266	9.6	5.0		7.2	212		
GEORGIA																
Streams																
Ochlockonee River	Thomas	1937	40	9.4	0.13	1.2	1.3	4.5	8	1.5	6.0	0.06		8.3	0	58

Note: Values given are based on one analysis.


U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
OCHLOCKONEE
BASIN NO. 6
AUGUST 1961
N.C.
GA
S.C.
ALA
FLA
LOCATION MAP
N
NORTH
BASIN 7
BASIN 5
MITCHELL
COLQUITT
DECATUR
GRADY
THOMAS
BROOKS
GEORGIA
FLORIDA
GADSDEN
LEON
JEFFERSON
MADISON
GEORGIA
FLORIDA
River
LIBERTY
Ochlockonee
Aucilla
River
WAKULLA
TAYLOR
Econfina
River
BASIN 7
New
River
FRANKLIN
GULF OF MEXICO
LAFAYETTE
BASIN 5
DIXIE
SCALE
0
10
20
30

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 6-1

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TABLE 6-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
OCHLOCKONEE BASIN
(values in ppm except color and pH)

Sampling Station	Total No. of Analyses	Descr. of Principal Aquifer	Period of Analyses	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA																	
Gadsden County																	
Greensboro	2	Prin.Art.	1948	229		0.22	32	18		186	0	20		7.6	152		5
Havana	1	Prin.Art.	1948	139		0.05	25	14		146	0	3		7.4	120	0.2	5
Quincy	13	Prin. Art.(7)	1924-60	458(7)	18(3)	0.14(7)	30(7)	20(7)	85(6)	151(7)	22(13)	100(13)	Tr.(4)	7.7(5)	157(7)	0.8(3)	5(5)
Leon County																	
Tallahassee	78	Prin. Art.(40)	1908-59	161(79)	13(4)	0.07(78)	35(79)	14(79)	7(10)	152(78)	10.6(79)	7.4(79)	4(4)	7.6(74)	138(78)	0.16(65)	6(68)
Jefferson County																	
Lamont	1	Unknown	1948	190			45	12		198	0	5		7.4	162	0.1	5
Monticello	3	Prin.Art.	1924-48	165(3)	10(2)	0.02(2)	41(3)	10(2)	3(2)	169(3)	3.5(3)	5(3)	Tr.	7.4(1)	142(3)	0.1(1)	5(1)
Liberty County																	
Hosford	2	Prin.Art.	1924-58	180(2)	23(1)	0.47(2)	42(2)	6.5(2)	24(1)	170(2)	20(2)	5(2)	Tr.	8.0(1)	130(2)	0.05(1)	10(1)
Telogia	1	Prin.Art.	1958	319		0.15	84	12		312	21	13		7.6	262	0.05	5
Wakulla County																	
Crawfordville	3	Prin.Art.	1924-48	196(3)	7.7(2)	0.06(3)	42(3)	6.4(3)	18(2)	144(3)	2.0(3)	26(3)	5.5(2)	7.8(1)	132	0.1(1)	5(1)
Live Oak Island	1	Unknown	1959	860		0.86	176	34		1006	0	253		7.0	582		
Franklin County																	
Carabelle	3	Overlying Rock(2)	1907-48	404(3)	15(1)	0.44(2)	92(3)	13(3)	34(2)	258(3)	66(3)	40(3)	Tr.	7.2(1)	282(3)	0.1(1)	15(1)
Three R. Village	1	Overlying Rock(2)	1956	301		0.14	82	11		305	23	13		7.0	250	0.15	5
Dog Island	1	Overlying Rock(2)	1959	129		0.08	8	4		61	10	11		7.0	72	0.15	80
Gulf Terrace	2	Unknown	1949-59	168(2)		0.04(2)	49(2)	4(2)		156(2)	2(2)	10(2)		7.5(2)	138(2)	0.05(1)	15(2)
Lanark Village	1	Overlying Rock	1956	343		0.30	68	25		332	59	19		7.2	272	0.05	20

Note: The number in parentheses shows number of analyses upon which the averages were computed.
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TABLE 6-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
OCHLOCKONEE BASIN
(values in ppm except color and pH)

Sampling Station	Total No. of Analyses	Descr. of Principal Aquifer	Period of Analyses	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA (CONT'D)																	
Taylor County																	
Private Well	2	Unknown	1957	244(2)		0.27(2)	64(2)	18(2)		275(2)	3(2)	9(2)		7.5(2)	237(2)		22(2)
Ezell Beach	2	Overlying Rock	1959	2475(2)		1.3(2)	86(2)	63(2)		153(2)	334(2)	1185(2)		7.5(2)	570(2)	0.25(2)	85(2)
Foley	5	Prin.Art.	1934-52	187(5)	6.0(3)	2.0(3)	34(5)	18(5)	3.8(3)	197(5)	4(5)	6(5)		7.4(4)	158(5)	0.27(3)	11(3)
Perry	16	Prin. Art.(12)	1908-58	216(16)	7.6(1)	1.07(13)	53(19)	16(19)	5.9(2)	235(19)	2.0(19)	7(19)		7.3(17)	190(16)	0.07(6)	20(13)
Dixie County																	
Shamrock	2	Prin.Art.	1941-49	266(2)		1.7(2)	75(2)	8.3(2)	10.6(2)	278(2)	0(2)	11(2)		8.1(2)	225(2)	0.1(1)	
GEORGIA																	
Mitchell County																	
Pelham	4	Prin.Art.	1938-59	186(1)	28(1)	0.2(1)	37(1)	18(1)	6.1(1)	204(1)	4.9(4)	10.9(4)	0.05(1)		157(4)	0(1)	
Thomas County																	
Thomasville	5	Prin.Art.	1932-58	248(4)	23(5)	0.3(3)	40(4)	18.2(4)	11.7(4)	157(4)	136(4)	7.9(4)	0.1(2)		179(4)	0.4(2)	
Tnomasville	2	Prin. Art.(1)	1957-58	289(2)	21(2)	0(2)	47([illegible])	20(1)	8.8(1)	145(2)	75(2)	12.5(2)	0(1)	7.8(1)	202(2)	0.4(1)	
Meigs	1	Prin.Art.	1941	140	31	0.9	21	8.6	15	127	5.3	3.1	0.5		88	0.4	
Grady County																	
Cairo	1	Prin.Art.	1958	605	18	0.08	75	36	49	152	255	42	0	7.7	335	0.5	
Cairo	1	Prin.Art.	1938	1030	16	0.03	132	71	75	150	522	75	0.28		621	0.4	

Note: The number in parentheses shows number of analyses upon which the averages were computed.

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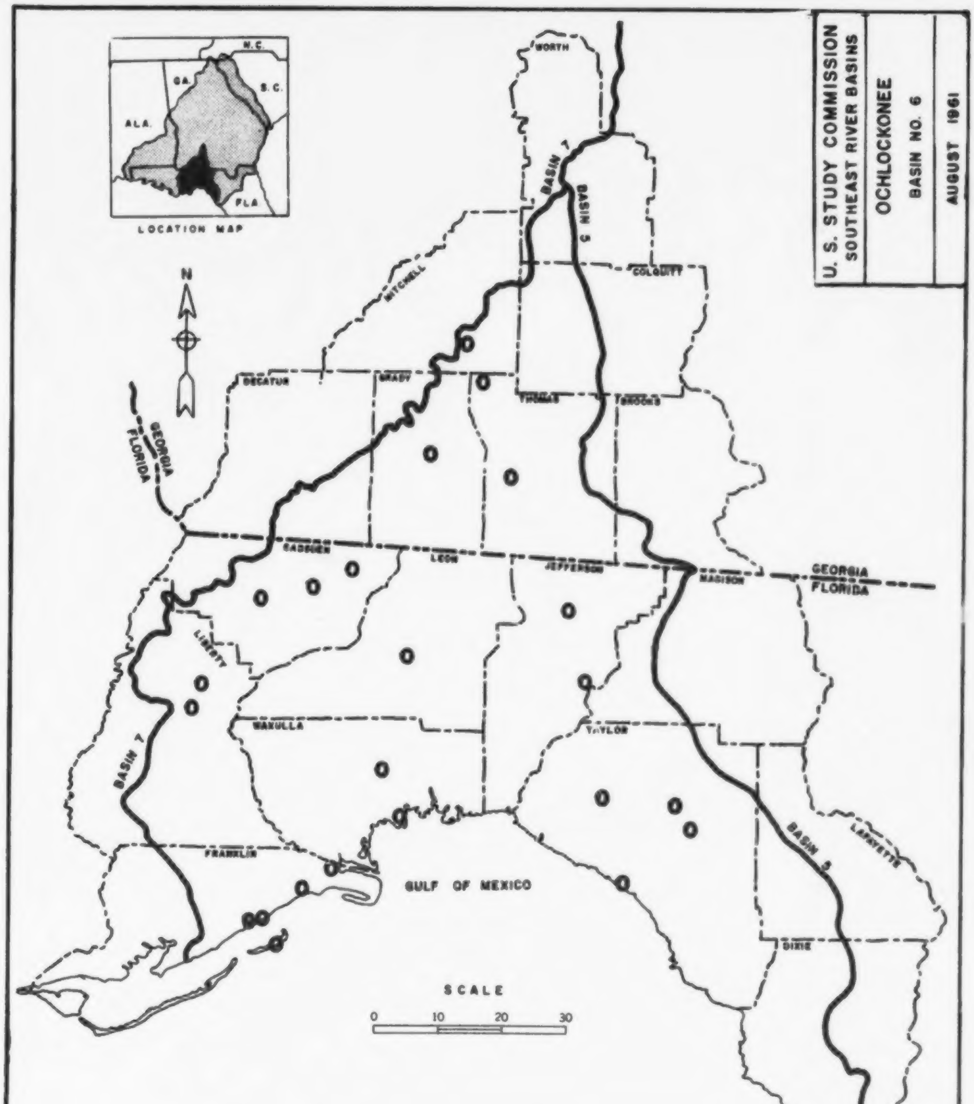
U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
OCHLOCKONEE
BASIN NO. 6
AUGUST 1961
N.C.
GA.
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ALA.
FLA.
LOCATION MAP
N
WORTH
MITCHELL
COLQUITT
DECATUR
GRADY
THOMAS
BROOKS
GEORGIA
FLORIDA
GADSDEN
LEON
JEFFERSON
MADISON
LIBERTY
WAKULLA
TAYLOR
FRANKLIN
LAFAYETTE
DIXIE
BASIN 7
BASIN 5
GULF OF MEXICO
SCALE
0
10
20
30

LOCATION OF SAMPLING STATIONS
GROUND WATER
FIGURE 6-2

TABLE 6-3
RADIOACTIVITY IN WATER
OCHLOCKONEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters									
Fenholloway River on Hwy 19, south of Foley	1958-60	5	0.3(2)	0.4	0.3	59.3	200.7	5.5	
Rocky Creek on Hwy 98	1958	1	0.3			27.0			
Econfina River on Hwy 98	1958-60	6	0.5(3)	0.6	0.3	62.7(5)	241.1	8.7	
Aucilla River on Hwy 98	1958-60	7	0.6(4)	1.2	0.1	35.9	182.3	3.0	
Lake Bradford - Tallahassee	1958-60	6	0.2(3)	0.4	0.05	59.9	162.6	3.3	
Lake Miccosukee	1958	2				26.1	40.8	11.4	
Lake Munson - Tallahassee	1958-60	7	1.0(5)	3.2	0.2	60.7	151.8	4.6	
St. Marks River, Tallahassee below Natural Bridge	1959-60	2	0.2	0.3	0.2	4.4	6.7	2.1	
St. Marks River, Tallahassee above Natural Bridge	1959-60	2	0.4(1)			9.5	11.6	7.4	
St. Marks River, Newport	1958-60	6	0.3(3)	0.4	0.3	28.7(5)	101.8	4.3	
Wakulla Springs	1959-60	3	0.5	0.8	0.2	7.0	18.4	1.1	
Wakulla River, Hwy 319	1958	1	0.4			5.5			
Wakulla River, Hwy 19	1958	2	0.02	0.05	0	14.6	24.1	5.2	

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TABLE 6-3 (CONT'D)
RADIOACTIVITY IN WATER
OCHLOCKONEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1) Avg.	Gross Alpha (uuc/1) Max.	Gross Alpha (uuc/1) Min.	Gross Beta (uuc/1) Avg.	Gross Beta (uuc/1) Max.	Gross Beta (uuc/1) Min.	Remarks
Florida Surface Waters (Cont'd)									
Quincy Creek at city limits of Quincy, Hwy 65	1959-60	4	1.5(3)	2.0	0.9	21.2	65.9	2.5	
Quincy Creek, Quincy Water Intake	1958	1				11.4			
Smith Creek, Ochlockonee River, Hwy 267	1959	1				272.4			
Lake Talquin	1958	2	0.1(1)			21.5	33.0	10.0	
Huckleberry's Creek at Martins Landing	1958	2	0.2(1)			25.3	45.0	5.7	
New River, west on U. S. 98	1959-60	2				30.6	44.6	16.7	
Ochlockonee River, below Lake Talquin Bridge, Hwy 20	1959-60	5	0.5(1)			78.2	316.7	5.7	
Ochlockonee River, U.S. Hwy 90 Bridge	1958-60	6	0.7(4)	1.7	0.1	36.5	127.5	5.6	
Telogia River at Shepards Mill	1958	1	0			10.0			
Telogia River Hwy 20 East of Bristol	1959	1	0.7			55.2			
Florida Ground Waters									
Cross City Municipal Airport	1958-59	2	1.1	2.2	0.1	4.0(1)			Deep well

(8/15/61)

TABLE 6-3 (CONT'D)
RADIOACTIVITY IN WATER
OCHLOCKONEE BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1)			Gross Beta (uuc/1)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Ground Waters (Cont'd)									
Telogia Junction Hwys 65 & 67	1959-60	3				4.0(1)			Shallow well
Quincy Well	1958	1	0.4			3.9			
Carabelle Well	1958	1				1.3			
Carabelle Municipal Well, City Hall	1959-60	3	0.6(2)	1.1	0.1	3.5	3.8	3.0	Deep well
Ben Thorpe S/D	1958	1	0.2			2.6			
Cottage Grove S/D	1958	1	0.7			6.4			
Dale Mabry Well	1958	1	0.4			6.7			
Norwood Estates	1958	2	0.1(1)			4.9	5.6	4.3	
Stiles S/D	1958	1				4.3			
Vickers S/D	1958	2	0.2	0.3	0.1	4.4	7.6	1.3	
White Acres S/D	1958	1	0.1			5.6			

Note: Numbers in parentheses show number of analyses upon which the average was computed if different than total number of analyses.
(8/15/61)

APALACHICOLA - CHATTAHOOCHEE - FLINT BASIN

Surface Water

The availability of surface water quality data in the Chattahoochee portion of the Apalachicola - Chattahoochee - Flint Basin was excellent. Some data were available in the Flint sub-basin and very little was available in the Apalachicola. Tables 7-1 and 7-3 and Figure 7-1 show the type and coverage of the surface water data.

As shown in Tables 7-1 and 7-3, data were available on the physical, chemical, bacteriological, and radiological quality of the surface waters. Data at an additional five stations in this basin were collected as part of the Water Quality Field Study and can be found in that section of the report.

Physical, chemical, and bacteriological (sanitary) quality data were available at fifty-one stations within the basin. Thirty-three of these stations were located in the Chattahoochee sub-basin, fourteen in the Flint, and four in the Apalachicola sub-basin. The distribution of stations in the Chattahoochee sub-basin was good except for the stretch between Atlanta and LaGrange, Georgia. There were only five stations located on the main stem of the Flint River and three on the Apalachicola River.

Most of the data for the Chattahoochee sub-basin were collected in the late 1940's and 1950's whereas the data for the Flint and Apalachicola sub-basins were collected in the late 1930's and 1940's. However, a study of all the data indicated that they probably represent current conditions. The data presented were obtained from published reports of the Alabama Water Improvement Commission, the Georgia Department of Mines, Mining, and Geology, and U. S. Geological Survey, and unpublished records of the Georgia Department of Public Health and the Robert A. Taft Sanitary Engineering Center of the U. S. Public Health Service.

The average dissolved oxygen content reported in the Chattahoochee sub-basin consistently exceeded 75 percent of saturation. Median coliform concentrations ranged from 15 to 4300 MPN per ml. An individual coliform count as high as 24,000 MPN per ml was reported at one station on the Chattahoochee River. Turbidity averages ranged from 10 to 80 ppm and color from 4 to 60. The average hardness of the waters never exceeded 50 ppm and other chemical constituents appeared to be within normal levels.

Only two stations in the Flint sub-basin reported dissolved oxygen and coliform concentrations. At these two stations, which were located in the lower reaches of the Flint River, the dissolved oxygen ranged from 76 to 88 percent of saturation and the average

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coliform concentrations ranged from 21 to 97 MPN per ml. The total dissolved solids of the stream waters ranged from 15 to 51 ppm and hardness from 7 to 46 ppm. Iron concentrations ranged from 0.0 to 0.18 ppm. Other chemical constituents appeared to be within normal levels.

The dissolved oxygen concentrations reported at two of the stations in the Apalachicola River were 88 and 86 percent of saturation. The average coliform concentration at these same two stations were 56 and 150 MPN per ml. The two stations reporting chemical data, reported iron concentrations of 0.5 and 0.54 ppm and total dissolved solids of 66 and 30 ppm.

Ground Water

The availability of ground water quality data in the Apalachicola - Chattahoochee - Flint Basin was good with the possible exception of the extreme lower portion of the basin. Tables 7-2 and 7-3 and Figure 7-2 show the type and coverage of the ground water data.

Chemical quality data were available at 105 stations within the basin. Forty-three were in the Chattahoochee sub-basin, forty-nine in the Flint, and thirteen in the Apalachicola sub-basin. The stations were evenly distributed throughout the basin. The data presented were obtained from unpublished records of the Georgia Department of Public Health, private laboratories, industrial firms, and reports of the Florida State Department of Conservation, the Florida State Board of Health, and the U. S. Geological Survey.

Most of the data presented were collected in the late 1940's and 1950's. A few of the stations had several years of records available, especially those located in Florida. Many of the stations located in Georgia were private wells or schools where information on the depth of the well or the aquifer used was not available.

The total dissolved solids of the waters obtained from the crystalline rock aquifers ranged from 39 to 275 ppm and hardness ranged from 8 to 137 ppm. Iron concentrations ranged from 0.03 to 2.4 ppm with seven stations reporting concentrations in excess of 0.3 ppm. One station of unknown aquifer reported an iron concentration of 17.5 ppm and one unusually high value of fluoride was reported at 10.0 ppm. Other chemical constituents appeared to be within normal levels.

Several of the stations were located in the belt of sand and overlapping limestone aquifers which lie just below the fall line. The chemical analysis results at these stations seemed somewhat inconsistent and thus are not discussed.

The total dissolved solids of the limestone waters ranged from 72 to 2520 ppm. Excluding the stations reporting these extremes, however, the dissolved solids only ranged from 81 to 320 ppm. The station reporting the high dissolved solids content also reported a hardness of 960 ppm. As this station is located on the Gulf Coast, it may have experienced salt water intrusion. The hardness of the limestone waters at the other stations ranged from 20 to 262 ppm. Excluding these extreme values, the hardness ranged from only 41 to 154 ppm. Only two stations reported an iron content in excess of 0.3 ppm. One station reported an unusually high nitrate concentration of 70.0 ppm. Other chemical constituents appeared to be within the normal levels expected of a limestone ground water.

Data on the radiological quality of the ground waters and also the surface waters of the basin are presented in Table 7-3. Radiological quality data were available for the Alabama and Florida portions of the basin with most of the data being reported in Florida. The data were obtained from reports of the Alabama Water Improvement Commission and the Florida State Board of Health.

In the report of the Florida State Board of Health, the following statement was made concerning the radiological quality of the State's waters:

> (1) A marked decrease in the radioactivity of surface waters and rainfall became apparent in the late spring of 1959 and continued until the French weapons testing the latter part of February 1960. The activity from this testing dropped off by May 1960 and continues to be undetectable.
>
> (2) An increase in the activity of underground water has not been found.
>
> (3) A few areas in the state, principally the phosphate ore bearing regions, have shown a little more alpha activity in both surface and underground waters than other portions of the state. This activity is negligible and much below maximum permissible levels.

In the Alabama report, the same general conclusions were also reached. No "hot" areas were reported in Alabama although higher counts in surface waters were reported during higher stream flows. The radioactivity in the streams were reported as decreasing after suspension of the nuclear weapons tests in 1959.

(8/15/61)

TABLE 7-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Dis-charge (cfs)	Temperature Degrees cent.	Dissolved Oxygen Parts per Million	Dissolved Oxygen Percent Saturation	5-day B.O.D.	Coliforms, MPN per ml	Total Dis-solved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness ($CaCO_3$)	Color Value	Turbidity
GEORGIA CHATTAHOOCHEE																									
Chattahoochee River, above Gainesville	498	9-49	13	Avg.	1,150	17.4	8.98	91.9	0.25	43							13		1.0		7.0				25
				Max.	1,380	19.6	9.33	93.7	0.39	93							14		1.0		7.1				25
				Min.	900	15.5	8.45	88.7	0.07	9							10		1.0		6.8				25
Chattahoochee River, at Gainesville	480	6-37									27	9	0.01	2.0	0.9	3.2		3.5	1.6	0.8		0.0	9	5	
		11-51										14					12	2.0	2.1		7.4		10		
		9-56											0	7.5			12	6.6	0.0		7.3		20		
		8-57											0	8.9			20	1.6	3.0		7.5		24		
		6-58											0	7.5			12	3.4	3.6		7.5		22		
		8-59											0	11.6			17	6.6	1.8		7.6		34		
Chattahoochee River, below Gainesville	470	9-49	13	Avg.	2,180	19.0	8.65	92.5	0.33	93							14		1.0		7.0				25
				Max.	2,650	22.0	9.01	93.5	1.49	430							16		1.0		7.2				25
				Min.	1,870	17.5	8.19	90.9	0.12	43							14		1.0		6.8				25
Chattahoochee River, near Buford	456	9-49	13	Avg.	2,310	20.8	8.51	94.4	0.36	230							15		1.0		7.0				25
				Max.	2,930	23.0	8.93	97.3	0.64	2,400							17		1.0		7.2				31
				Min.	2,050	19.5	8.08	92.5	0.19	93							14		1.0		6.8				25
Chattahoochee River, at Marietta		9-56											0	13.7			20	6.6	4.2		8.3		46		
		8-57											0	10.2			20	3.4	1.8		7.8		27		
		6-58											0	7.5			19	4.9	4.2		7.5		20		
		7-59											0	8.9			17	0	4.2		7.7		24		
Chattahoochee River, above Atlanta	414	9-49	13	Avg.	2,810	21.5	8.72	97.7	0.23	93							16		1.0		7.0				29
				Max.	3,440	23.5	9.04	100.0	0.70	430							19		1.0		7.2				42
				Min.	2,410	20.0	8.32	94.4	0.01	75							15		1.0		6.9				25
Chattahoochee River, at Atlanta	405	5-37to 4-38		Avg.							33	11	0.04	2.4	1.1	4.4	16	2.7	1.9	0.4			11	9	
		9-49	13	Avg.	2,930	24.0	7.77	91.3	0.87	930							20		1.0		7.0				38
				Max.	3,670	25.5	8.34	97.0	1.12	2,300							22		1.0		7.2				80
				Min.	2,450	22.5	7.19	84.4	0.56	430							27		1.0		6.9				25
		3-51	1								33	10	0.14	2.8	1.0	3.3	16	2.1	1.9	0.3	6.9	0.0	11	4	
		10-56											0	15.7			20	3.4	1.2		7.9		50		
		9-57											0	7.5			22	6.6	3.6		7.8		29		
		7-58											0	6.9			22	3.4	9.1		7.8		26		
		7-59											0	4.8			10	3.4	1.8		7.2		12		
Chattahoochee River, near Newnan	371	9-49	13	Avg.	3,530	22.5	7.29	83.3	0.80	430							20		1.0		7.0				53
				Max.	4,640	25.0	7.77	86.2	1.31	930							23		1.0		7.2				130
(8/1/61)				Min.	2,840	20.5	6.69	77.8	0.21	93							16		1.0		6.9				28

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TABLE 7-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from south	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness (CaCO$_3$)	Color Value	Turbidity
							Parts per Million	Percent Saturation																	
GEORGIA (CONT'D) CHATTAHOOCHEE																									
Chattahoochee River, at Newnan (cont'd)		10-56											0	15.7			26	9.9	1.2		8.1		46		
		8-57											0	14.4			33	4.9	3.0		8.5		46		
		6-58											0	10.9			26	3.4	15.2		7.7		36		
		6-59											0	11.6			27	4.9	15.2		7.8		38		
Chattahoochee River, at La Grange	320	11-51									48	14	0.03	4.2	1.3	5.4	16	4.6	5.6	1.1	6.9	0.3	16	17	10
		3-56											0	10.3			15	6.6	6.7		7.8		31		
		4-57											0	9.5			15	4.9	3.0		8.4		26		
		4-58											0	10.3			17	1.6	3.6		8.6		27		
		6-59											0	9.5			15	4.9	3.0		8.4		26		
Chattahoochee River, at West Point	310	4-49	15	Avg.	8,100	20	7.3	80.1	1.4	930							21				6.9		14	40	80
		to		Max.	19,000	25	8.6	90.5	2.4	4,600							30				7.4		20	60	320
		6-49		Min.	3,500	16	6.5	68.3	0.8	36							16				6.5		8	30	15
Chattahoochee River, below Riverview, Ala.	300	4-49	15	Avg.		20	7.0	76.9	1.5	860							23				6.8		16	40	70
		to		Max.		25	8.2	88.1	2.0	2,400							38				6.9		22	50	160
		6-49		Min.		16	6.0	67.9	1.0	91							15				6.5		10	30	20
Chattahoochee River, above Bartletts Ferry Dam	290	4-49	15	Avg.		22	8.1	91.2	0.8	15							22				6.7		13	45	40
		to		Max.		27	9.0	99.1	1.2	230							26				6.9		20	60	80
		6-49		Min.		17	7.0	82.1	0.6	3.6							18				6.6		10	25	20
Chattahoochee River, at Columbus	270	5-38									34	10	0.01	2.8	1.1	3.8				1.0		0.0	12	6	
		4-51									40	10	0.09	3.0	1.1	4.7	16		2.9	1.1	6.6	0.1	12		
		7-56											0	10.2			26	1.6	9.1		8.6		29		
		6-57											0	10.2			26	9.9	7.3		8.4		36		
		5-58											0	12.3			22	13.2	5.5		8.5		31		
		10-59											0	10.9			27	8.3	5.5		8.8		27		
Chattahoochee River, at Phenix City, Ala.	270	4-49	15	Avg.	9,200	22	9.1	101.3	1.2	1,500							23				6.9		16	45	50
		to		Max.	23,000	26	10.0	107.0	2.4	11,000							28				7.9		21	60	110
		6-49		Min.	5,700	17	8.2	96.1	0.6	36							19				6.7		10	35	20
		9-57	16	Avg.	3,121	22.6	7.99		2.66*	680							21				7.4				
				Max.	5,150	29.0	9.70		4.80	11,000							24				7.7				
				Min.	1,300	20.0	6.60		1.68	91							17				6.9				
		8-58	6	Avg.	4,948	28.1	7.55		1.49*	620							17				7.1				
				Max.	6,170	30.0	8.00		2.12	2,400							19				7.5				
				Min.	3,640	26.5	7.10		0.96	230							15				6.2				

(8/1/61)

TABLE 7-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness (CaCO$_3$)	Color Value	Turbidity
							Parts per Million	Percent Saturation																	
GEORGIA (CONT'D) CHATTAHOOCHEE																									
Chattahoochee River, below Phenix City, Ala.	264	9-57	11	Avg.	3,330	25.8	6.51		2.52*	3,300							21				7.0				
				Max.	5,350	28.0	8.65		3.34	9,300							24				7.2				
				Min.	1,300	20.0	4.00		1.87	1,500							18				6.8				
		8-58	6	Avg.	5,096	28.2	7.03		1.35*	3,300							17				7.1				
				Max.	6,190	30.0	7.45		3.22	15,000							19				7.4				
				Min.	3,790	26.5	6.40		C.60	230							15				6.8				
Chattahoochee River, at Fort Benning	257	4-49 to 6-49	15	Avg.	9,900	22	8.4	95.3	1.0	930							24				6.8		16	45	55
				Max.	25,000	27	9.6	104.7	2.4	11,000							36				7.0		22	60	140
				Min.	6,100	17	7.6	88.9	0.6	240							16				6.5		12	35	20
		9-57	12	Avg.	3,402	25.3	6.45		1.96*	4,300							19				6.9				
				Max.	5,700	28.0	8.55		4.12	11,000							22				7.2				
				Min.	1,525	20.0	4.00		1.03	430							14				6.6				
		8-58	6	Avg.	5,102	28.3	6.54		1.27*	1,665							17				7.2				
				Max.	5,550	29.5	7.10		2.12	4,300							17				7.3				
				Min.	4,720	26.0	6.15		1.05	930							16				7.0				
Chattahoochee River, near Cottonton, Ala.	248	4-49 to 6-49	14	Avg.	10,400	23	8.1	92.1	1.6	2,000							22				6.7		16	45	50
				Max.	29,000	27	9.0	97.2	3.4	26,000							37				6.9		24	60	100
				Min.	5,800	18	7.4	87.3	0.8	240							17				6.5		8	40	25
		9-57	4	Avg.	3,750	25.1	6.99		1.44*	1,050							17				6.9				
				Max.	5,950	28.0	8.75		2.18	4,300							18				7.3				
				Min.	1,450	20.0	4.60		0.89	350							17				6.8				
		8-58	6	Avg.	5,017	28.3	6.32		1.15*	3,100							16				7.1				
				Max.	5,450	30.0	6.70		1.40	4,300							17				7.3				
				Min.	4,410	27.0	6.00		1.00	750							15				7.0				
Chattahoochee River, above Eufaula, Ala.	230	9-57	4	Avg.	4,938	21.3	7.27		1.10*	680							17				6.9				
				Max.	6,650	23.0	7.80		1.69	2,400							19				7.3				
				Min.	2,800	20.0	6.70		0.55	230							16				6.8				
Chattahoochee River, at Eufaula	208	1-49 to 3-49	16	Avg.	18,000	13	8.6	81.6	1.8	430							22				6.9		18	50	55
				Max.	38,000	16	11.0	96.9	5.4	2,400							27				7.1		28	60	170
				Min.	11,000	10	7.4	70.4	0.6	93							18				6.7		13	40	20
		9-57	2	Avg.	6,275	21.8	7.42		1.05*	430							18				6.8				
Chattahoochee River, at Fort Gaines	183	1-49 to 3-49	17	Avg.	20,000	14	8.5	81.1	1.4	930							22				6.7		18	50	30
				Max.	38,000	17	11.0	99.3	3.2	4,600							27				6.9		29	70	110
				Min.	17,500	10	6.6	63.7	0.2	93							19				6.3		11	40	20
		7-58	3	Avg.	7,740	27.0	5.88	72.7	2.30	240															

(8/1/61)

TABLE 7-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness (CaCO3)	Color Value	Turbidity
							Parts Per Million	Percent Saturation																	
GEORGIA (CONT'D) CHATTAHOOCHEE																									
Chattahoochee River, at Columbia, Ala.	157	6-48	1			13.0	7.00	86.0	0.70	134**															
		1-49	16	Avg.	23,000	14	8.2	78.9	1.4	930							23				6.7		17	60	50
		to		Max.	39,800	17	10.8	97.5	2.8	2,400							30				7.1		23	100	120
		3-49		Min.	13,100	11	6.6	67.9	0.4	75							18				6.6		10	40	20
		7-58	3	Avg.	12,700	27.0	6.15	76.1	1.95	308															
Chattahoochee River, at U. S. Highway 84	145	1-49	16	Avg.	23,000	14	8.2	78.8	1.3	430							22				6.7		19	60	50
		to		Max.	40,600	18	10.6	95.7	2.0	1,100							29				6.9		27	100	130
		3-49		Min.	13,500	11	6.6	68.0	0.4	36							17				6.6		12	40	20
Chattahoochee River, above Fla.-Ga. Line	139	6-48	1			13.0	6.93	85.5	0.70	53**															
		7-58	2	Avg.	12,350	27.2	6.20	77.0	1.80	56															
Chattahoochee River, below Fla.-Ga. Line	130	7-58	2	Avg.	10,800	28.0	5.91	74.8	1.40	19															
Chattahoochee River, above Jim Woodruff Dam	120	7-58	2	Avg.	10,800	28.5	6.15	77.8	1.58	29															
Chattahoochee River, at Jim Woodruff Dam	110	7-58	2	Avg.	10,800	29.8	6.83	88.3	1.80	8															
Yahoola Creek at Dahlonega		1-55	1								25	1					22	0.2			6.6		14		
Spring Creek at Dahlonega		1-55	1								34	1					24	0.4	7.4		6.1		24		
Spring Creek at Dahlonega		1-55	1								52	3					38	0.4	8.4		6.3		26		
Peeler Branch at Gainesville		11-51	1									11					14				7.3		12		
Crier Creek at Gainesville		11-51	1									10					19				5.8		6		
Spring Creek at Cumming		8-38	1								109	47					46	7.6	3.4						
Dave Bay Branch at Dallas		10-45									62	26	0.12	4.5	1.7	6.6	30	3.5	2.9	0.1	6.7	0.1	18	7	

(8/1/61)

TABLE 7-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses		Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness ($CaCO_3$)	Color Value	Turbidity
							Parts per Million	Percent Saturation																	
GEORGIA (CONT'D) CHATTAHOOCHEE																									
Long Cane Creek, at LaGrange		5-38	1								54	21	0.05	4.7	2.0	5.5	31	2.5	1.9	0.3		0.0	20	6	
FLINT																									
Flint River, at Griffin	414	5-38	1								51	15	0.06	4.8	1.9	5.8	30	1.6	2.0	0.7		0.0	20	8	
		11-51	1								53	20	0.18	3.5	1.6	6.9	26	2.5	3.6	0.4	6.9	0.4	15	32	4
		10-56	1										0	17.8			22	9.9	3.0		7.6		46		
		9-57	1										0	13.7			33	1.6	5.5		7.7		41		
		6-58	1										0	14.4			20	4.9	6.1		7.5		41		
		9-59	1										0	12.3			38	3.4	6.2		7.6		34		
Flint River, at Montezuma	290	9-44	1								33	10	0.02	2.4	1.0	4.3	17	1.9	2.2	0.3		0.0	10	4	
Flint River, at Albany	213	1-38	1								43	10	0.16	7.0	1.2	4.2	30	1.7	3.0	0.4		0.0	22	12	
Flint River, at Bainbridge	139	10-42 to 12-42		Avg.							68	9	0.05	17.0	1.0	3.5	54	3.2	2.7	0.6		0.1	46	14	
		6-48	1			12.4	7.10	88.0	0.75	71**															
		7-58	3	Avg.	8,800	26.0	6.87	83.0	1.30	21							63				7.8				
Flint River, at Jim Woodruff Dam	110	6-48	1			12.4	7.10	88.0	0.75	97**															
		7-58	2	Avg.		27.2	6.15	76.0	1.60																
Ward Spring, at Concord		8-38	1								38	12					9	0.3	0.3						
Spring at Woodbury		8-39	1								15	10		1.0	0.5	1.0	4		1.0	1.0	5.0	10.0	8	2	
Trib. of Pigeon Creek, at Manchester		5-38	1								15	4	0.01	0.8	0.3	2.0	4	0.9	1.8	0.1		0.0	3	7	
Ichowaynochway Creek, at Manchester		10-44 to 9-45		Avg.							67	7	0.12	16.0	0.9	2.4	53	1.4	3.0	0.6			44	23	
Potato Creek, at Thomaston		5-38									35	9	0.12	2.8	1.2	4.2	19	1.7	2.2	0.6			12	8	
Springs at Americus		1-38									29	6	0.09	1.1	1.0	4.0	2	0.7	4.0	10.0			7		
		12-51										7					3				5.6		7		

(8/1/61)

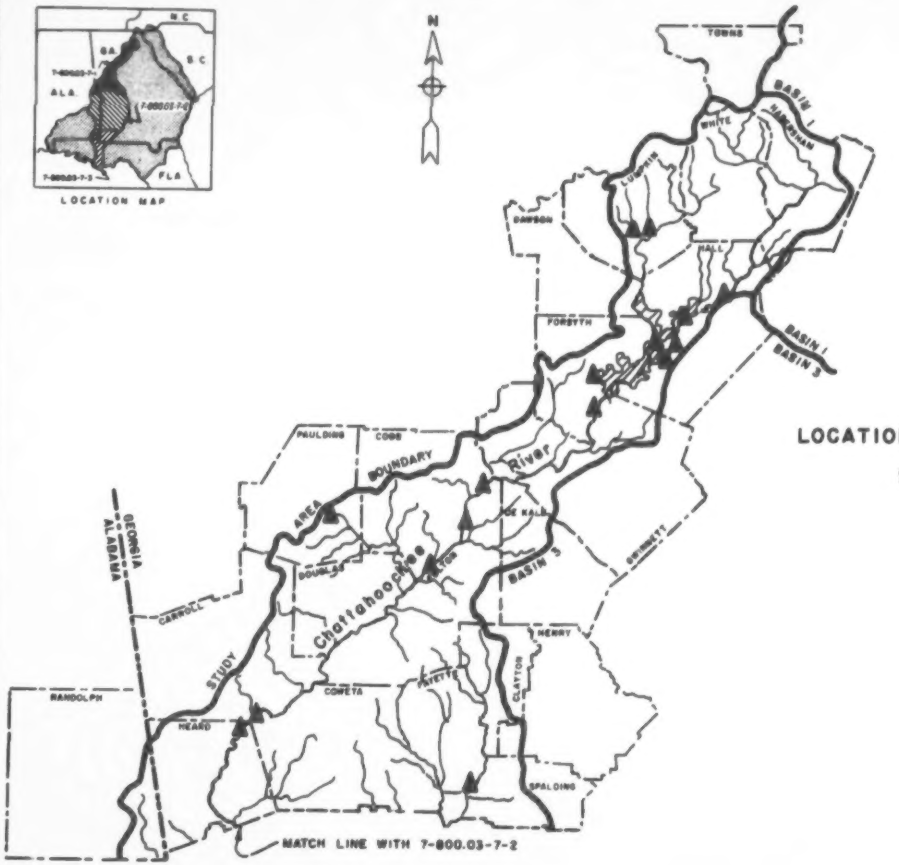
TABLE 7-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(All values in ppm as noted)

Sampling Station	Mileage from mouth	Period of Analyses	No. of Analyses	Average Discharge (cfs)	Temperature Degrees cent.	Dissolved Oxygen		5-day B.O.D.	Coliforms, MPN per ml	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chlorides	Nitrates	pH Value	Fluoride	Hardness $(CaCO_3)$	Color Value	Turbidity
						Parts per Million	Percent Saturation																	
GEORGIA (CONT'D) FLINT																								
Indian Springs, near Albany		6-37								152	8	0.01	51.0	0.6	2.0	157	1.2	2.4	2.5		0.0	130	3	
Radium Springs, near Albany		6-37								136	10	0.01	45.0	1.1	1.9	140	1.3	2.2	1.4		0.0	117	3	
Spring Creek, at Iron City		1-38								102	5	0.06	34.0	1.0	3.3	109	1.1	3.2	0.3			89	12	
FLORIDA APALACHICOLA																								
Apalachicola River, at Chattahoochee	116	10-24	1							66	10	0.50	13.0	1.5	6.3	46	4.5	4.0	0.6			39		
Apalachicola River, below Chattahoochee	107	6-48	1		12.4	7.10	88.0	0.6	56**															
Apalachicola River, at Aspaloga Bluff	105	6-48	1		12.4	7.00	86.0	0.5	150**															
Mosquito Creek, near Chattahoochee		5-49	1							30		0.54	2.0	0.5	4.6	15	0.0	2.0		7.1		7		

* - Ultimate 1st stage B.O.D.
** - Arithmetic mean.

Note: Coliform averages are given as median concentrations except as noted.

(8/1/61)


N
N.C.
S.C.
GA.
ALA.
FLA.
7-800.03-7-1
7-800.03-7-2
LOCATION MAP
TOWNS
WHITE
HABERSHAM
BASIN 1
LUMPKIN
DAWSON
HALL
FORSYTH
BASIN 1
BASIN 3
PAULDING
COBB
BOUNDARY
AREA
STUDY
River
Chattahoochee
DE KALB
DOUGLAS
BASIN 3
GWINNETT
GEORGIA
ALABAMA
CARROLL
HENRY
CLAYTON
FAYETTE
COWETA
RANDOLPH
HEARD
SPALDING
MATCH LINE WITH 7-800.03-7-2

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 7-1

SCALE
0 10 20 30 Miles

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

APALACHICOLA–CHATTAHOOCHEE–FLINT
BASIN NO. 7

AUGUST 1961

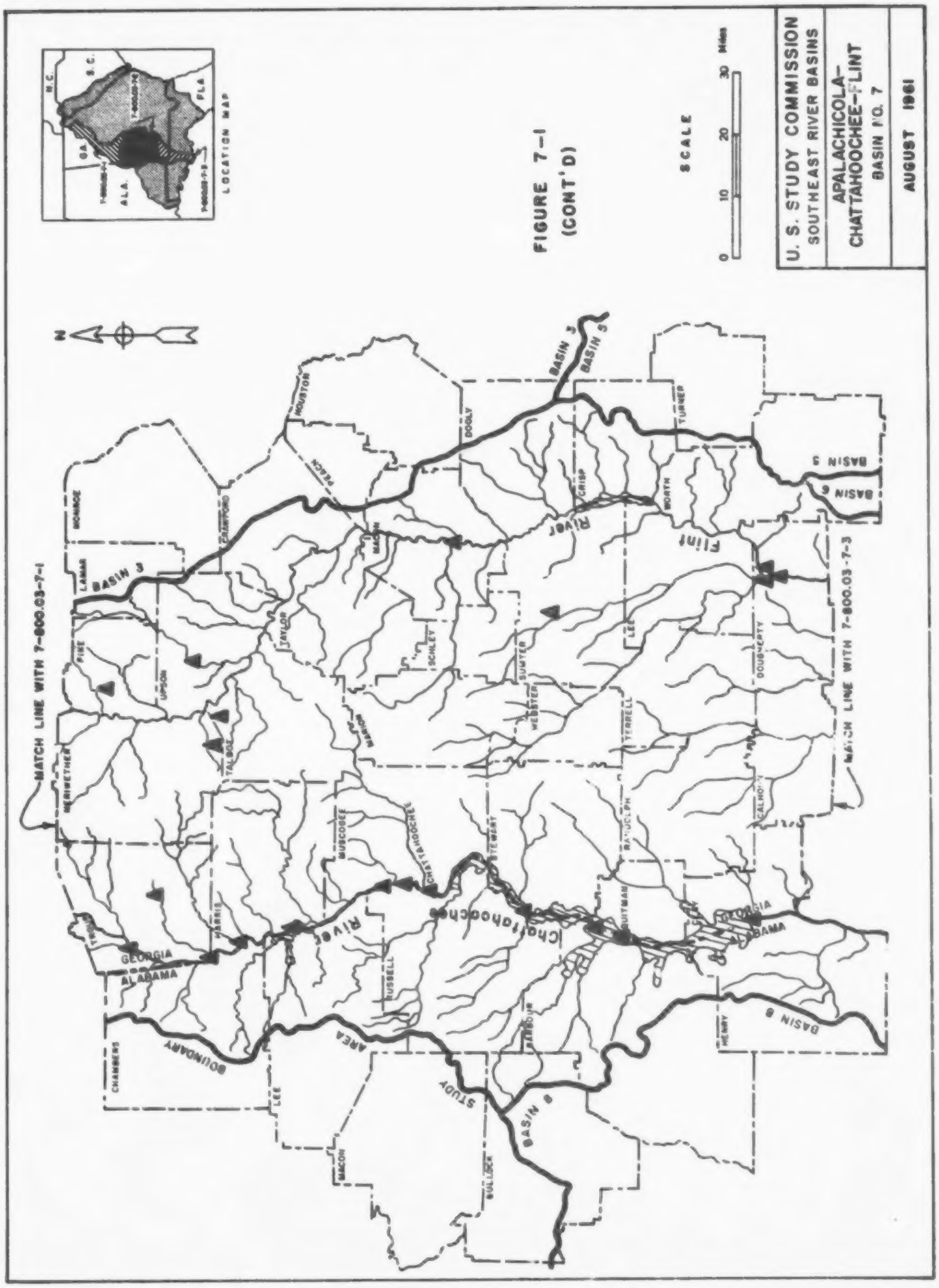


FIGURE 7-1
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
APALACHICOLA–CHATTAHOOCHEE–FLINT
BASIN NO. 7
AUGUST 1961
SCALE
0
10
20
30
Miles
LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
N
MATCH LINE WITH 7-800.03-7-1
MATCH LINE WITH 7-800.03-7-3
BASIN 3
BASIN 5
BASIN 6
BASIN 8
STUDY
AREA
BOUNDARY
Flint
River
Chattahoochee
River
GEORGIA
ALABAMA
MERIWETHER
PIKE
LAMAR
MONROE
CRAWFORD
HOUSTON
PEACH
DOOLY
CRISP
TURNER
WORTH
TAYLOR
MACON
SCHLEY
SUMTER
LEE
DOUGHERTY
UPSON
TALBOT
MARION
WEBSTER
TERRELL
CALHOUN
TROUP
HARRIS
MUSCOGEE
CHATTAHOOCHEE
STEWART
RANDOLPH
QUITMAN
CHAMBERS
LEE
RUSSELL
BARBOUR
HENRY
MACON
BULLOCK

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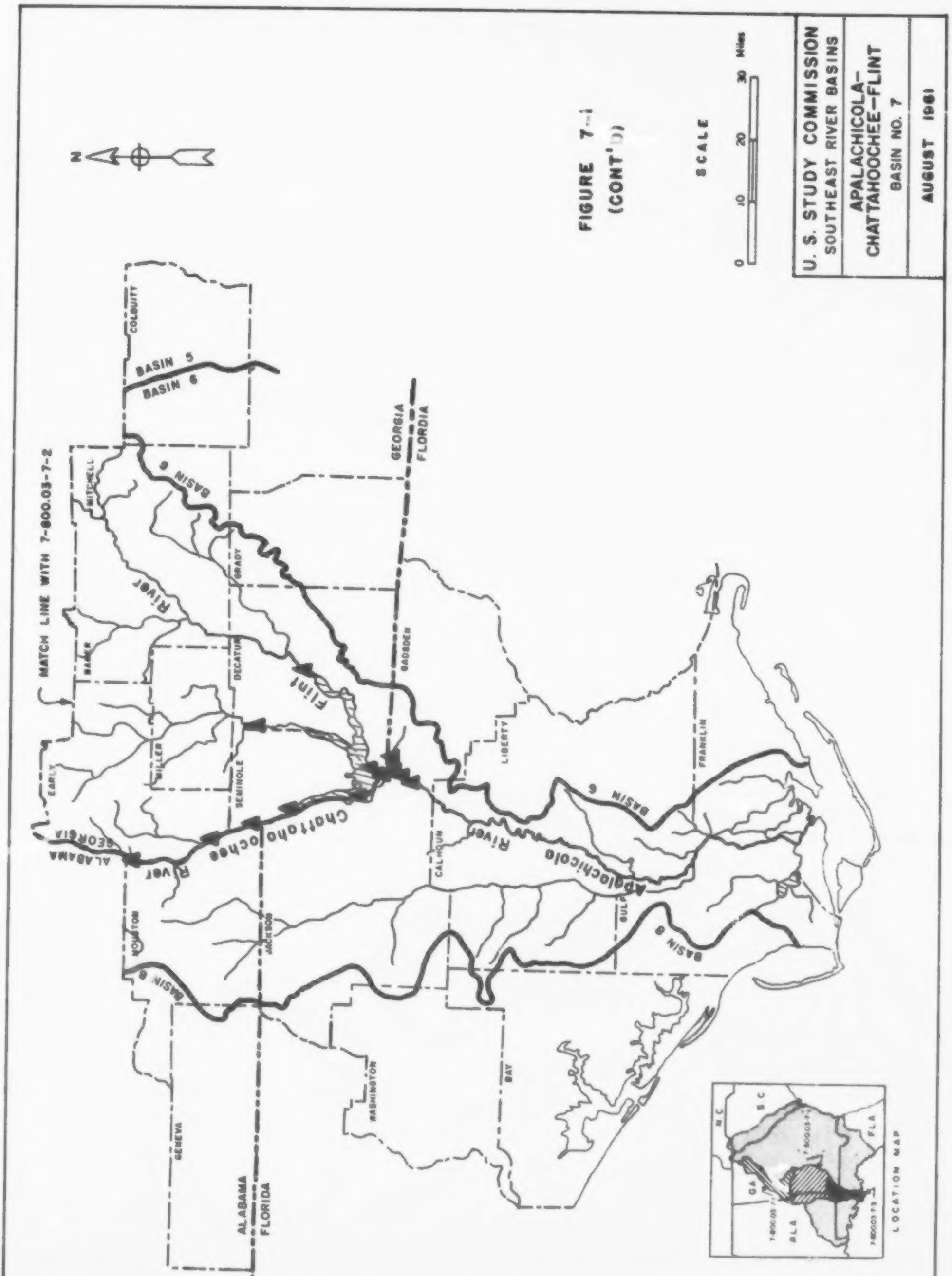
N
MATCH LINE WITH 7-800.03-7-2
ALABAMA
GEORGIA
FLORIDA
BASIN 5
BASIN 6
COLQUITT
MITCHELL
BAKER
EARLY
MILLER
SEMINOLE
DECATUR
GRADY
GADSDEN
LIBERTY
FRANKLIN
CALHOUN
GULF
BAY
WASHINGTON
JACKSON
HOUSTON
GENEVA
Flint River
Chattahoochee River
Apalachicola River
N.C.
S.C.
GA
ALA
FLA
LOCATION MAP
SCALE
0
10
20
30
Miles

FIGURE 7-1
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

APALACHICOLA-
CHATTAHOOCHEE-FLINT
BASIN NO. 7

AUGUST 1961

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TABLE 7-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	Total No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA CHATTAHOOCHEE																	
Habersham County																	
Cornelia	1945	1	Rock(C)	39	10.0	0.10	6.0	Tr.			3.0	3.0		8.0	30	0.2	
Demorest	1956	2	Rock(C)	52	15.0	0.03	16.2	1.6		57	2.4	1.6		6.8	50	0.1	
White County																	
Cleveland	1946	4	Rock(C)	93	26.3	0.22	5.3	0.1		37(3)	0.8	3.3		7.1	23		
Helen	1958	1	Rock(C)	189	14.0	0.10	34.0	7.0	Tr.	65	26.0	1.0	4.0	8.4	113	0.5	25
Hall County																	
Flowery Br. (PW)	1960	1	Unknown	70	6.0	2.90				43	0.0	3.0		6.7	46		5
Forsyth County																	
Cumming (PW)	1959	1	Unknown	81	10.0	0.10				50	0.0	0.0		7.8	62		2
Cherokee County																	
Woodstock	1951	1	Rock(C)	275	26.0					48	0.8	59.0		6.9	106		
Gwinnett County																	
Duluth	1949-59	3	Rock(C)	81	19.3	0.69(2)	4.8(1)			43	2.7	4.6		6.5	40		18(1)
Suwanee	1952	1	Rock(C)	182	3.0	0.21	29.9	2.5		142	8.2	4.2		8.0	87		
Buford (Fed.)	1954	2	Rock(C)	84	6.5	0.20	7.1	2.1		47	2.0	8.0		7.0	28		
Norcross (PW)	1958	1	Unknown	35	6.0	1.60				32	0.0	0.0		8.0	28		
Fulton County																	
Hapeville	1938	3	Rock(C)	113	33.7	0.12	13.7	4.5	11.9	79*	8.7	2.3	0.1		55	0.0	
College Park	1938	2	Rock(C)	101	26.0	0.06	14.0	2.6	10.3	56*	14.0	2.7	0.6		46	0.0	
East Point	1938	3	Rock(C)	249	22.3	0.86	38.0	10.2	15.2	38*	115.3	8.3	3.0		137	0.0	
Atlanta (PW)	1957-58	3	Unknown	88	28.8(1)	0.06	12.9	2.8		50	3.3	4.2		7.9	86(1)	0.4(1)	
Alpharetta (PW)	1960	1	Unknown	98	4.0	0.10				21	10.0	4.0		5.6	44		
Cobb County																	
Marietta	1938-51	7	Rock(C)	119	28.6	0.19	13.6	5.6	9.0	53*	8.2	7.8	11.2	6.9(1)	58	0.0(6)	
Acworth (PW)	1954	1	Unknown	140	12.0	0.40	14.0	Tr.	Tr.	70	12.0	11.0	0.0	8.0	35	0.5	
Powder Springs	1958	1	Rock(C)	137	37.0	0.01	20.0	5.6	9.8	98*	6.4	5.5	6.5	7.5	73	0.3	
Paulding County																	
Hiram	1956	1	Rock(C)	172	21.6	0.02	27.3	5.9		78	2.0	1.0		7.5	94	0.1	
Douglas County																	
Douglasville (S)	1958	1	Rock(C)	43	6.0	1.60				22	0.0	5.0		7.5	12		
Carroll County																	
Whitesburg	1951	1	Rock(C)	162	28.0					36	1.4	10.8		6.0	77		
Springfield (S)	1957	2	Unknown	159	14.5	1.40	13.0	Tr.	11.5	50	4.0	3.0	0.4	8.4	29	0.4	4
Burwell (S)	1957	1	Unknown	156	23.0	3.30	17.0	5.0	0.5	26	Tr.	1	0.6	8.3	30	Tr.	
Villa Rica (PW)	1958	1	Unknown	68	11.0	0.40	7.0	3.0	6.0	40	3.0	0.5	0.1	8.2	30	0.3	5

(8/1/61)

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TABLE 7-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D)																	
CHATTAHOOCHEE																	
Coweta County																	
Senoia	1947	1	Rock(C)	110	14.0	0.12	16.2	1.3		32	3.1	8.4		6.7	47		
Newnan (PW)	1951-57	6	Unknown	123	18.3	0.08	7.5(5)	2.1(5)	8.0(1)	38	1.6(5)	4.3(5)	0.2(1)	6.8	48	0.3(2)	3(2)
Armco (S)	1954	1	Unknown	102	9.0	0.12	11.4	1.6		64	0.2	5.6		7.6	38		
Haralson (PW)	1956	1	Unknown	86	20.0	0.90				60	4.0	0.0		6.4	60		4
Moreland (PW)	1960	1	Unknown	21	9.4	1.20	1.5	1.4		7	0.0	2.8		5.9	10	0.7	
Heard County																	
Franklin	1934-58	2	Rock(C)	55	14.0	0.20				29	0.0(1)	5.0(1)		5.8	33		2
Troup County																	
LaGrange (PW)	1957	1	Unknown	92	15.0	0.40				61	0.0	3.0		6.9	56		2
Harris County																	
Waverly Hall	1947-51	2	Rock(C)	142	14.5	2.40	17.3	3.2	0.0(1)	51	2.9	5.1	1.2(1)	7.3	60	0.3(1)	25(1)
West Point (PW)	1949-59	2	Unknown	94	22.0	0.10	4.3(1)	1.4(1)		61	0.2(1)	2.4		7.0	39		2(1)
Muscogee County																	
Ellerlie Sta. (PW)	1953	1	Unknown	169	20.0	0.05	23.0	Tr.	Tr.	12	7.0	0.0	0.0	7.1	57		
Columbus (PW)	1957	1	Unknown	53	18.0	0.20				30	0.0	8.0		6.1	28		2
Chattahoochee County																	
Cusseta	1953-59	2	Sand(Tu)	159	37.0	1.20	10.9	0.6	10.8	60(1)	7.4	12.0	5.5	6.5	28	0.2	
Stewart County																	
Richland	1956-59	4	Sand(Cu)			0.0	4.1			10	2.5	2.1		6.7	12		
Richland (PW)	1958	1	Unknown	37	6.0	6.90				20	0.0	0.0		6.3	22		8
Lumpkin (PW)	1959	1	Unknown	56	4.0	0.10				8	0.0	12.0		5.9	26		2
Quitman County																	
Georgetown	1956-58	2	Sand(Tu)	337	8.0	0.11	0.8	0.0(1)	65.2	328*	0.0	8.5	0.1	8.8	11	0.7(1)	5(1)
Clay County																	
Fort Gaines	1958	1	Limestone	251	16.0	0.15	5.6	1.5	91.7	226*	12.0	15.0	0.0	8.3	20	1.0	4
Early County																	
State Park	1950	1	Limestone	166	32.0	Tr.	52.8	0.5		126				7.9	134		
Blakely	1958	1	Limestone	214	15.0	0.01	3.2	1.5	79.8	184*	16.0	7.0	0.7	8.4	14	0.6	1
Seminole County																	
Donalsonville	1958	1	Limestone	140	6.1	0.01	50.0	0.2	2.4	153*	0.2	3.5	1.4	7.5	126	0.0	3
FLINT																	
Clayton County																	
Forest Park	1938	1	Rock(C)	112	43.0					63	0.3	6.8					
Riverdale	1952-56	3	Rock(C)	106	23.3	0.12	10.7	2.2		63	0.9	3.8		7.4	38	0.0(1)	

(8/1/61)

TABLE 7-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D) FLINT																	
Fayette County																	
Fayetteville	1947	1	Rock(C)	125	37.0					48	0.1	4.2		7.7	32		
Fayetteville(PW)	1960	1	Unknown	611	17.0	0.10				50	410.0	6.0		7.4	504		
Henry County																	
Fairview (S)	1954	1	Unknown	64	9.0	0.24	2.6	0.3		23	0.3	7.2		7.2	8		
Spalding County																	
Orchard Hill (PW)	1949-53	3	Unknown	120	21.0	0.09(2)	18.4	2.0	Tr.(1)	56	12.8	8.3	Tr.	7.1	55	0.0(1)	
Griffin (PW)	1951	1	Unknown	124	2.0	0.03	18.2	0.8		77	0.2	5.4		7.6	50		
Pike County																	
Molena (S)	1952	1	Unknown	136	16.0	0.12	21.7	3.6		97	3.2	6.4		7.8	70		
Concord (S)	1954	1	Unknown	50	5.0	0.20	1.7	0.5		21	0.6	7.6		6.7	7		
Zebulon (PW)	1958	1	Unknown	104	10.0	1.50				18	0.0	54.0		6.7	40		3
Meansville	1959	1	Rock(C)	183	12.0	0.70				112	30.0	0.0		7.6	84		2
Meriwether County																	
Woodbury	1939	1	Rock(C)	15			1.0	0.5	1.0	4				5.0	8	10.0	2
Luthersville	1954	1	Rock(C)	103	16.0	0.27	10.8	1.0		51	15.0	5.8		7.1	32		
Gay (S)	1954	1	Rock(C)	89	14.0	0.18	7.7	3.5		51	2.2	4.8		7.2	34		
Manchester (PW)	1956	1	Unknown	344	17.0	0.0				80	64.0	10.0		6.6	208		2
Warm Springs (PW)	1957	1	Unknown	81	26.0	5.10				73	0.0	6.0		6.5	56		15
Lone Oak (PW)	1959	1	Unknown	65	6.0	0.10				22	10.0	15.0		6.8	44		2
Upson County																	
Thomaston (PW)	1946	2	Unknown	90	23.0	2.12	6.3(1)	0.4(1)		34	1.7	6.7		6.7	30		4(1)
Yatesville	1957-58	2	Rock(C)	154	16.5	1.15	10.0(1)	Tr.(1)	49.0	23	0.5	43.3	2.0(1)	6.5	41	0.1	4
Talbot County																	
Woodland	1954-56	2	Rock(C)	142	7.5	0.48	21.5	Tr.	Tr.	75(1)	5.0	10.0	0.1	7.8	53	0.4	
Woodland (PW)	1957	1	Unknown	61	20.0	0.50				37	0.0	3.0		6.3	34		3
Geneva (PW)	1957	1	Unknown	33	15.0	17.50				14	0.0	12.0		6.0	22		7
Talbotton	1958	1	Rock(C)	235	18.0	0.10	20.0	12.0	4.0	91	8.0	5.5	7.0	7.3	100	0.2	0
Junction City(PW)	1959	1	Unknown	110	12.0	1.20	1.20			62	10.0	3.0		7.5	22		4
Crawford County																	
Roberta	1939	1	Sand	116	40.0					57	1.8	3.4					
Marion County																	
Buena Vista	1948	1	Sand			0.01	6.8	0.0	2.0			4.0		6.2	14		
Buena Vista (PW)	1959	1	Unknown	29	4.0	0.90				22	0.0	3.0		5.6	24		14
Taylor County																	
Butler	1948	1	Sand	21	8.5	0.01	1.4							7.5	4		

(8/1/61)

TABLE 7-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D) FLINT																	
Macon County																	
Marshallville	1953	2	Sand	32(1)	6.4	0.30			13.0(1)		6.1	10.7	4.0(1)	4.6	5	0.1(1)	3(1)
Oglethorpe	1960	1	Sand	107	52.0	0.42	8.5	1.6		25	2.8	0.0		6.5	29	0.6	
Montezuma (PW)	1960	1	Unknown	59	6.0	4.80				30	0.0	2.0		6.6	36		30
Schley County																	
Ellaville (PW)	1957	1	Unknown	18	10.0	7.60				18	0.0	0.0		6.5	16		
Dooly County																	
Byromville	1947	1	Sand	100	18.0			2.9		58	6.8	2.8		6.9	63		
Vienna	1958	1	Claiborne	151	15.0	0.09	50.0	0.2	2.0	153*	7.0	2.0	0.2	7.5	126	0.1	
Crisp County																	
Cordele	1938-59	9	Claiborne	153(5)	22.2(5)	0.01	49.4	2.7(4)	3.4(4)	124*	4.2	2.2	0.9	7.7	130	0.1(4)	
Sumter County																	
Americus	1938-59	13	Clayton	158(8)	41.6(9)	0.23(11)	32.5(11)	3.1(7)	5.2(7)	93*	9.2(12)	2.5(12)	0.1(8)	7.3(9)	98	0.0(7)	3(2)
Americus (PW)	1960	1	Unknown	41	4.0	2.60				12	0.0	6.0		6.0	24		2
Plains	1953-38	2	Clayton	138	37.5	0.71	24.0	1.8	2.8	77*	12.5	26.6	0.3	6.2	71	0.1(1)	
Plains (PW)	1960	1	Unknown	96	4.0	4.00				62	10.0	3.0			80		12
Leslie	1958	1	Claiborne	137	21.0	0.06	43.0	1.6	1.2	134*	3.2	2.0	0.1	7.6	118	0.2	
Webster County																	
Preston	1948	1	Sand and Limestone	39	11.0	Tr.	7.5	0.7		18				6.4	22		
Randolph County																	
Cuthbert	1938-59	6	Clayton	159(3)	16.7(3)	0.10	50.5	5.3(3)	2.8(3)	127*	9.9	1.9	0.0(1)	7.6(5)	147	0.1(1)	
Shellman	1948	1	Clayton	28	13.0	Tr.	5.6			6					18		
Terrell County																	
Dawson	1938-58	3	Clayton	155	26.3	0.03	39.5(2)	4.4(2)	9.0(2)	135*	13.5(2)	2.1(2)	0.0(1)	7.8(2)	121	0.1(1)	
Bronwood	1958	1	Clayton	143	25.0	0.11	32.0	3.4	11.3	116*	5.5	2.2	0.0	7.7	94	0.2	
Lee County																	
Leesburg	1958	1	Claiborne	144	15.0	0.01	44.0	2.2	3.0	144*	1.5	3.0	2.1	7.5	120	0.2	
Smithville	1958	1	Limestone(PA)	81	15.0	0.02	16.0	0.5	6.1	48*	0.0	8.2	5.3	6.6	44	0.0	
Worth County																	
Warwick	1943	1	Sand and Limestone							152*	1.0	3.0			122	0.1	
Dougherty County																	
Albany	1928-59	14	Clayton	176(10)	20.5(10)	0.08	40.7	6.5(6)	35.2(6)	157(10)*	6.8(10)	3.6(10)	0.2(4)	7.8(11)	94	0.3(4)	
Albany (PW)	1957	1	Unknown	63	12.0	0.30				42	0.0	3.0		7.0	38		2
Albany (PW)	1957	1	Limestone(PA)	143	11.0	0.08	47.0	1.1	2.4	150*	0.2	2.0	1.3	7.7	122	0.0	

(8/1/61)

TABLE 7-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
GEORGIA (CONT'D) FLINT																	
Calhoun County																	
Edison	1958	1	Clayton	161	23.0	0.15	35.0	5.0	13.9	149*	9.5	0.0	0.2	7.7	108	0.1	
Baker County																	
Newton	1938-58	2	Limestone(PA)	136	14.0	0.01(1)	36.0(1)	3.4(1)	6.7(1)	117*	3.2	2.2	1.5(1)	7.8(1)	104(1)	0.1(1)	
Mitchell County																	
Camilla	1938-58	3	Limestone(PA)	137	8.9	0.03	47.5(2)	1.2	2.8(2)	137*	1.2(2)	3.1(2)	1.8(2)	7.5	120	0.0(2)	3(2)
Miller County																	
Colquitt	1958	1	Limestone(PA)	125	7.1	0.01	42.0	0.2	2.1	130*	0.5	3.0	2.5	7.7	106	0.1	
Decatur County																	
Bainbridge	1938-58	9	Limestone(PA)	158(5)	9.1(5)	0.05(8)	42.5	7.0(4)	3.8(5)	105*	3.4	4.8(8)	1.2(4)	7.8(7)	114	0.1(4)	2(1)
Bainbridge (PW)	1959	1	Unknown	262	12.0	2.00				210	0.0	3.0		7.0	203		7
FLORIDA APALACHICOLA																	
Jackson County																	
Sneads	1907-51	2	Limestone(PA)	118		0.6	24.0	13.0	3.0(1)	134(1)*	70.0	4.0	3.0(1)	7.4(1)	113	0.0(1)	5(1)
Grand Ridge	1907	1	Limestone(PA)	138		Tr.	27.0	13.0	3.0	151*	Tr.	2.0			121		
Marianna	1923-60	10	Limestone(PA)	215(6)	14.0(1)	0.05(9)	35.8	15.0(6)	3.2(3)	172*	3.6(9)	12.8	3.8(1)	7.6(9)	146	0.1(2)	5(3)
Marianna (PW)	1907-49	7	Limestone(PA)	180	13.5(4)	0.10	54.3	4.4	5.5(5)	163*	2.4	4.9	1.9(4)	7.5(6)	154	0.1(3)	5(2)
Cottondale	1949	1	Limestone(PA)	181		0.05	47.0	4.0	4.6	166*	0.0	6.0		7.3	136	0.0	5
Cottondale (PW)	1907-40	2	Limestone(PA)	139	3.2(1)	0.0	41.0	0.9	6.4	141*	1.2(1)	3.5	3.5(1)	8.2(1)	108	0.2(1)	
Cottondale (S)	1959	2	Limestone(PA)	135		0.05	31.5	9.0		136*	10.0	6.0		7.7	120	0.1	5
Campbellton	1949	1	Limestone(PA)	174		0.60	31.0	14.0		156*	0.0	2.0		7.4	135	0.0	
Gadsden County																	
Chattahoochee	1948-59	3	Limestone(PA)	151		0.11	36.0	10.3	6.9(1)	158*	6.7	5.0		7.7	134	0.2	5
Chattahoochee(PW)	1948	1	Limestone(PA)	227		0.30	34.0	9.2	28.0	149*	0.0	43.0		7.5	122		5
Greensboro	1948	2	Limestone(PA)	229		0.23	31.5	18.0	25.0(1)	186*	0.0	20.0		7.6	152		5
Liberty County																	
Bristol	1954-58	3	Limestone(PA)	140		0.19	34.6	6.7		124*	31.3	6.3		7.7	115	0.1	8
Bristol (PW)	1924	2	Limestone(PA)	163		0.10	6.6	6.0	20.0	2*	1.8	16.0	70.0		41		
Mystic Springs	1949	1	Limestone(PA)	72		2.10	6.0	1.0		24*	0.0	1.0		7.6	20	0.0	5
Torreya Park	1949	1	Limestone(PA)	147		0.10	24.0	15.0		159*	0.0	2.0		7.6	125	0.5	5
Telogia (PW)	1958	1	Limestone(PA)	319		0.15	84.0	12.0		312*	21.0	13.0		7.6	262	0.1	5
Calhoun County																	
Blountstown	1924-59	5	Limestone(PA)	320	19.0(1)	0.08	37.8	17.2	16.0	188*	4.0(4)	51.7		7.6(4)	167	0.8(4)	5(4)

(8/1/61)

TABLE 7-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
APALACHICOLA-CHATTAHOOCHEE-FLINT BASIN
(Values in ppm except pH and color)

Sampling Station	Period of Analyses	No. of Analyses	Descr. of Principal Aquifer	Total Dissolved Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA (CONT'D)																	
APALACHICOLA																	
Franklin County																	
Apalachicola	1924-60	10	Limestone(PA)	684(5)	25.5(3)	0.05	73.2	64.5(5)	4.8(3)	291*	75.0	73.5	1.4(2)	7.6(8)	446	0.9(2)	5(2)
Apalachicola(Fed.)	1946-47	3	Limestone(PA)	326(3)		0.04	47.6	36.3		310*	16.7	17.7		7.3	269	0.3	6
Apalachicola(PW)	1955	3	Limestone(PA)	2520		0.40	175.6	127.3		262*	99.6	938.0		7.4	960	0.3	10

* As Bicarbonate

Note-Number in parentheses shows number of analyses upon which the average was computed if different than the total number of analyses.

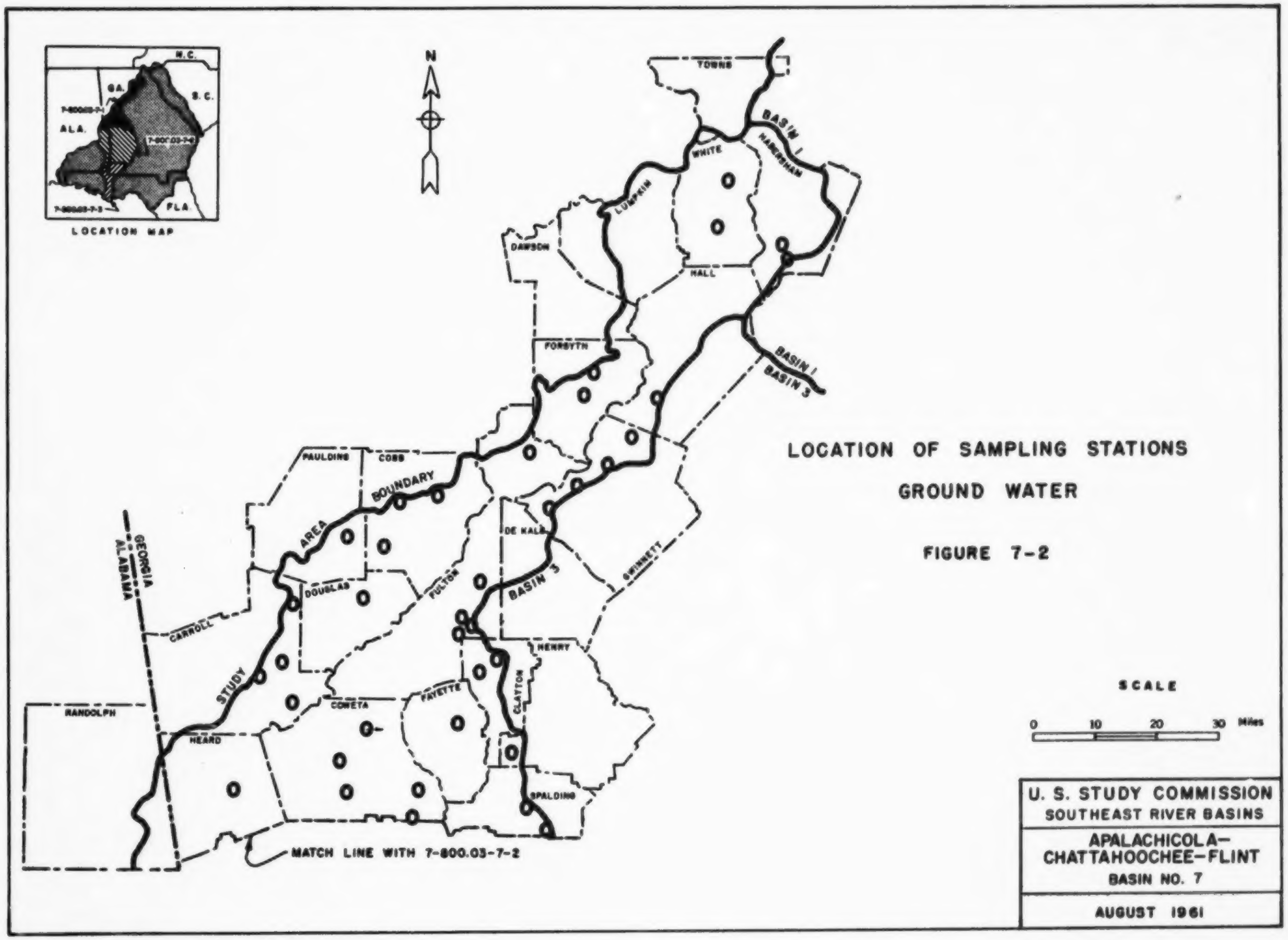
Legend:
(PW) Private Well
(Fed.) Federal
(S) School

Rock-
(C) Crystalline

Sand-
(Tu) Tuscaloosa
(Cu) Cusseta

Limestone-
(PA) Principal Artesian

(8/1/61)


N.C.
GA.
S.C.
7-800.03-7-1
ALA.
7-800.03-7-2
7-800.03-7-3
FLA.
LOCATION MAP
N
TOWNS
BASIN 1
HABERSHAM
WHITE
LUMPKIN
DAWSON
HALL
FORSYTH
BASIN 1
BASIN 3
PAULDING
COBB
BOUNDARY
AREA
DE KALB
GWINNETT
DOUGLAS
FULTON
BASIN 3
CARROLL
GEORGIA
ALABAMA
HENRY
STUDY
FAYETTE
CLAYTON
RANDOLPH
COWETA
HEARD
SPALDING
MATCH LINE WITH 7-800.03-7-2
SCALE
0
10
20
30
Miles

LOCATION OF SAMPLING STATIONS
GROUND WATER

FIGURE 7-2

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
APALACHICOLA–
CHATTAHOOCHEE–FLINT
BASIN NO. 7
AUGUST 1961

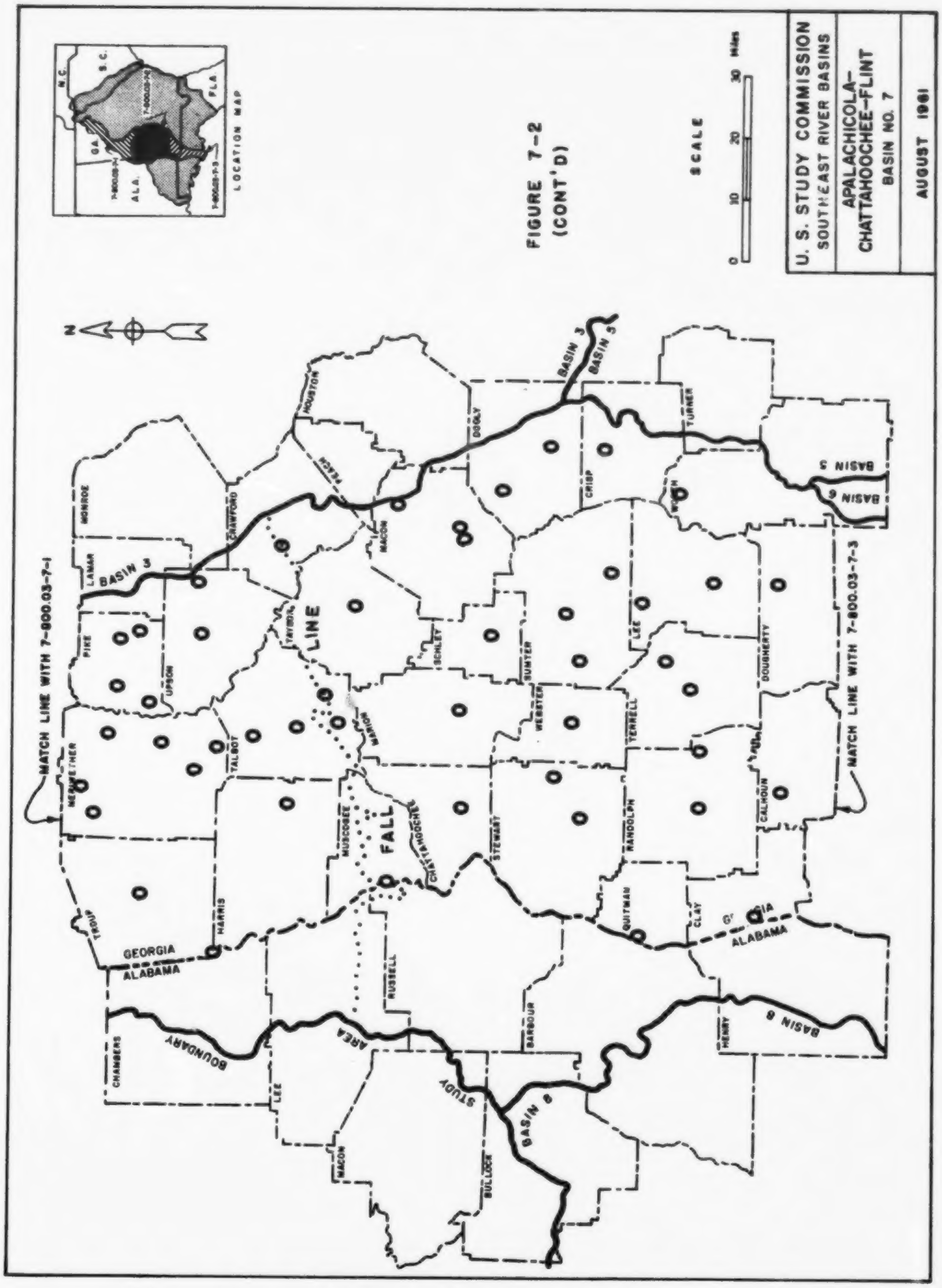


FIGURE 7-2 (CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
APALACHICOLA-CHATTAHOOCHEE-FLINT
BASIN NO. 7
AUGUST 1961
SCALE
0 10 20 30 Miles
LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
N
MATCH LINE WITH 7-800.03-7-1
MATCH LINE WITH 7-800.03-7-3
BASIN 3
BASIN 5
BASIN 6
BASIN 8
FALL LINE
STUDY AREA BOUNDARY
GEORGIA
ALABAMA
MONROE
LAMAR
PIKE
UPSON
CRAWFORD
HOUSTON
PEACH
MACON
DOOLY
CRISP
TURNER
WORTH
LEE
SUMTER
SCHLEY
TAYLOR
MARION
TALBOT
MERIWETHER
TROUP
HARRIS
MUSCOGEE
CHATTAHOOCHEE
STEWART
WEBSTER
TERRELL
DOUGHERTY
CALHOUN
RANDOLPH
QUITMAN
CLAY
CHAMBERS
RUSSELL
BARBOUR
HENRY
BULLOCK

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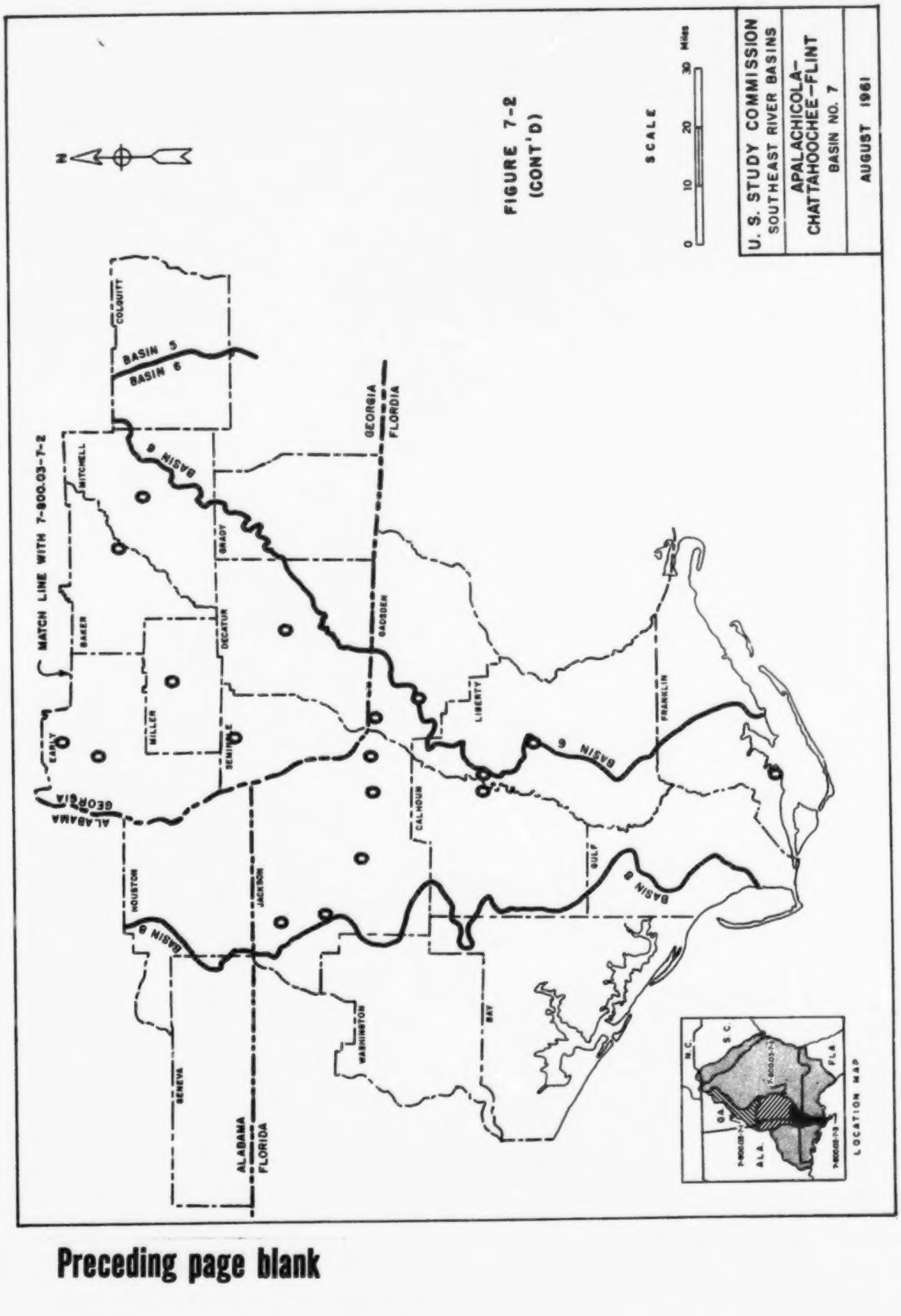
N
MATCH LINE WITH 7-900.03-7-2
BASIN 5
BASIN 6
COLQUITT
MITCHELL
BAKER
EARLY
MILLER
DECATUR
GRADY
SEMINOLE
GADSDEN
GEORGIA
FLORIDA
ALABAMA
GEORGIA
HOUSTON
JACKSON
CALHOUN
LIBERTY
FRANKLIN
GULF
BAY
WASHINGTON
GENEVA
ALABAMA
FLORIDA
BASIN 8
BASIN 9
SCALE
0
10
20
30
Miles
N.C.
S.C.
GA.
ALA.
FLA.
LOCATION MAP

FIGURE 7-2
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
APALACHICOLA-
CHATTAHOOCHEE-FLINT
BASIN NO. 7
AUGUST 1961

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TABLE 7-3
RADIOACTIVITY IN WATER
APALACHICOLA - CHATTAHOOCHEE - FLINT BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Alabama Surface Waters									
Phoenix City Water Intake Chattahoochee River	1958-60	12	1.3	3.9	0.3	13.3	43.4	4.5	
Chattahoochee River Bridge on U. S. 84	1958-60	17	0.9	1.8	0	9.0	20.1	0.5	Between Dothan and Bainbridge
Florida Surface Waters									
Apalachicola River at Blountstown Bridge, Hwy.20	1959-60	2	0.8(1)			5.6	9.6	1.7	
Chipola River near Dead Lake, Wewahitchka	1959	1	1.5			315.0			
Chipola River near Clarksville	1959-60	4	0.7	0.8	0.6	40.0	114.9	1.7	
Chipola River at Wewahitchka above entrance Apalachicola River	1959	1				1.6			
St. George's Island off Apalachicola River	1959	1				16.0			
Apalachicola River at Jim Woodruff Dam	1958	1				14.0			
White City Canal	1958	2				21.3	34.0	8.7	

(8/15/61)

TABLE 7-3 (CONT'D)
RADIOACTIVITY IN WATER
APALACHICOLA - CHATTAHOOCHEE - FLINT BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1)			Gross Beta (uuc/1)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters - cont'd									
Sink Creek at Jackson-Calhoun County Line	1958	1				2.7			
St. Joe Water Works - Canal	1958	3	0.1(2)	0.14	0.1	12.4	20.0	4.2	
Merritt Mill Pond	1958	2	0.2(1)			7.4	9.1	5.7	
Compass Lake - S. E. Shore	1958	2				28.0	41.0	15.0	
Apalachicola River at Blountstown	1958	1	0.12			6.3			
Blountstown Lake	1958	1	0.12			7.8			
Florida Ground Water									
Apalachicola	1958	1				5.0			Deep well
Cottondale	1959-60	2	0.8	1.6	0.1	0.2(1)			Deep well 490'deep
Marianna	1959-60	3	0.3(1)			9.1	10.4	8.0	Shallow well 20' deep
Marianna Well No. 3	1958	1	0.1			1.3			Deep well
Indian Pass S/D	1957	1				1.0			Deep well 420'deep

Note: Number in parenthesis shows number of analyses upon which the average was computed if different than total number of analyses.

(8/15/61)

CHOCTAWHATCHEE - PERDIDO BASIN

Surface Water

The availability of surface water quality data in the Choctawhatchee - Perdido Basin was excellent especially in the Alabama portion of the basin. Tables 8-1 and 8-3 and Figure 8-1 show the type and coverage of the surface water data.

The physical and bacteriological (sanitary) quality data presented were obtained mainly from a report of an extensive field survey made in 1949 by the Water Improvement Commission. Although the data were collected in 1949, the Alabama Water Improvement Commission has stated that they are representative of current conditions. Data collected in 1958 by both the Alabama Water Improvement Commission and the Florida State Department of Health on the Conecuh - Escambia portion of the basin have also been included. Except for the Escambia sub-basin, data on surface water quality of the Florida portion of the basin were not available.

The total number of sampling stations located within the basin was 125. Of these, forty were in the Conecuh - Escambia sub-basin, fifty-two in the Choctawhatchee, twenty-two in the Perdido, and eleven in the Yellow sub-basin. There were thirteen stations located in the Florida portion of the basin, all of them being in the Conecuh - Escambia sub-basin.

As shown in Tables 8-1 and 8-3, data were available on the physical, chemical, bacteriological (sanitary), and radiological quality of the water.

From the data presented in Table 8-1, the physical, chemical, and bacteriological quality of the surface waters of the Conecuh - Escambia sub-basin appear to be within normal levels with the possible exception of the Escambia River below U. S. Highway 184. Changes in the chemical and bacteriological quality of the waters in this reach of the river were noted.

The average dissolved oxygen of the waters in the upper reaches of the Conecuh - Escambia sub-basin was generally above 75 percent of saturation. Below U. S. Highway 184, the dissolved oxygen content steadily decreased from an average of 69.9 percent to 33.1 percent of saturation at the mouth of the river. Several stations reported relatively high average coliform concentrations. However, all of these stations were located on tributary creeks and at or just below municipal waste discharges. Only one station reported an average hardness in excess of 50 ppm. Average turbidity of the waters ranged from 10 to 65 ppm and color from 60 to 118. The higher color values were reported at the stations on the Escambia River below U. S. Highway 184.

From the data presented in Table 8-1, the physical, chemical, and bacteriological quality of the surface waters of the Choctawhatchee sub-basin appear to be within normal levels with only a few exceptions noted in smaller tributaries receiving municipal waste discharges.

The average dissolved oxygen of the waters of the main stem of the Choctawhatchee River was above 75 percent of saturation with only one exception. The station located on the Alabama - Florida line reported an average dissolved oxygen concentration of 73 percent. Only one station reported an average hardness concentration in excess of 50 ppm. Average turbidity ranged from 10 to 65 ppm and color from 25 to 155. The high color values were reported at the stations directly below sources of waste discharges.

From the data presented in Table 8-1, the physical, chemical, and bacteriological quality of the waters in the Perdido and Yellow sub-basin was generally within normal levels. However, several stations did show signs of degraded water quality. Depressed levels of dissolved oxygen and high concentrations of coliform organisms were reported at a number of the stations located on tributaries. An average dissolved oxygen content of 19.7 percent of saturation was reported at one station in the Perdido sub-basin and 24.4 percent was reported in the Yellow sub-basin. The average concentration of hardness was consistently reported below 50 ppm. Turbidity averages ranged from 5 to 55 ppm and color from 10 to 105.

Ground Water

The availability of ground water quality data in the Choctawhatchee - Perdido Basin was good. Tables 8-2 and 8-3 and Figure 8-2 show the type and coverage of the ground water data.

Chemical quality data were available at seventy stations within the basin. Of these, twenty-one were located in Alabama. The stations were fairly evenly distributed throughout the basin although a large number of the Florida stations were located along the Gulf Coast. Most of the data presented for Alabama were collected in 1960 whereas in Florida most of the data were collected in the 1940's and 1950's. A number of the Florida stations had long-term records available with good correlation between analyses noted. Specific information concerning the aquifers was available for the Alabama stations. The data presented were obtained mainly from reports of the Florida State Department of Conservation, the Florida State Board of Health, the Alabama State Board of Health, and the Alabama Geological Survey.

The total solids content, which included both suspended and dissolved solids, for the stations in the Alabama portion of the basin ranged from 79 to 437 ppm. Unfortunately, the dissolved solids fraction could not be determined adequately from the available data. In Florida, the total dissolved solids for the stations located in the sand aquifers ranged from 17 to 131 ppm. The hardness of the waters obtained from the sand aquifers ranged from 5 to 199 ppm and iron ranged from 0.0 to 4.10 ppm. Seven stations reported iron concentrations of 0.3 ppm or greater.

The total dissolved solids of the limestone waters ranged from 95 to 688 ppm and hardness from 28 to 270 ppm. The stations reporting the high values of dissolved solids and hardness were located along the coastal area of the basin. Seven stations reported an iron concentration of 0.3 ppm or greater. Of these, two stations located along the coast reported concentrations of 2.28 and 3.90 ppm. The fluoride content of the limestone water appeared high especially in the lower coastal areas of the basin. Other chemical constituents appeared to be within the normal levels expected of a limestone ground water.

Data on the radiological quality of the ground waters and also the surface waters of the basin are presented in Table 8-3. Radiological quality data were available for the Alabama and Florida portions of the basin with most of the data being reported in Florida. The data were obtained from reports of the Alabama Water Improvement Commission and the Florida State Board of Health.

In the report of the Florida State Board of Health, the following statement was made concerning the radiological quality of the state's waters:

> (1) A marked decrease in the radioactivity of surface waters and rainfall became apparent in the late spring of 1959 and continued until the French weapons testing the latter part of February 1960. The activity from this testing dropped off by May 1960 and continues to be undetectable.
>
> (2) An increase in the activity of underground water has not been found.
>
> (3) A few areas in the state, principally the phosphate ore bearing regions, have shown a little more alpha activity in both surface and underground waters than other portions of the state. This activity is negligible and much below maximum permissible levels.

In the Alabama report, the same general conclusions were also reached. No "hot" areas were reported in Alabama although higher counts were reported during higher stream flows. The radioactivity in the streams were reported as decreasing after suspension of the nuclear weapons tests in 1959.

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TABLE 8-1
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen Parts Per Million	Dissolved Oxygen Percent Saturation	5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
ALABAMA																
CONECUH																
Conecuh River	111.4	1-28-49	6	Avg	940	14	7.9	76.5	1.7	47	6.7	25	90	21	21	
U.S. Highway 231		to		Max	2700	17	8.6	81.1	2.4	110	6.9	30	120	23	26	
3 miles north, Troy		3- 9-49		Min	350	10	7.2	74.2	1.0	3.6	6.5	20	80	17	16	
Conecuh River	108.8	1-28-49	6	Avg	1000	14	8.0	77.8	1.1	26	6.5	20	90	20	21	
4 miles N.W. Troy		to		Max	2800	17	8.6	81.1	1.6	110	6.8	30	120	22	29	
		3- 9-49		Min	390	11	7.2	74.2	0.0	3.6	6.3	15	80	18	14	
Conecuh River	105.8	1-28-49	6	Avg	1000	15	8.1	79.1	1.0	31(5)	6.5	20	85	20	19	
U. S. Highway 29		to		Max	2200	17	9.0	84.9	1.4	110	6.7	30	100	22	23	
4 miles west, Troy		3- 9-49		Min	500	11	7.2	74.2	0.4	7.3	6.3	15	80	17	13	
Double Branch	106.6	1-28-49	6	Avg	16	14	9.3	88.0	0.8	83(5)	6.7	25	75	25	20	
3 miles below sewer		to		Max	24	17	10.4	92.6	2.0	240	6.8	35	80	28	22	
outfalls		3- 9-49		Min	11	7	8.2	82.4	0.0	7.3	6.6	15	70	20	20	
Conecuh River	91.8	2- 1-49	6	Avg	1600	14	8.2	79.1	0.9	46	6.5	25	105	23	22	
Glenwood		to		Max	2700	19	10.0	84.3	1.2	93	6.7	30	150	28	31	
		2-23-49		Min	1000	8	6.8	64.1	0.4	9.1	6.3	20	80	17	17	
Conecuh River	82.4	2- 1-49	5	Avg	1700	14	8.2	78.8	1.1	41	6.6	30	100	22	21	
Highway 86, Brantley		to		Max	3000	18	10.4	87.6	1.6	93	6.7	45	150	27	29	
		2-23-49		Min	1100	8	7.2	67.9	0.8	3.6	6.3	20	80	19	16	
Conecuh River	61.8	1-19-49	6	Avg		15	8.5	82.6	1.3	2.8(4)	6.7	20	85	22	23	
U. S. Highway 29		to		Max		18	9.4	92.6	2.0	4.3	6.9	25	100	25	33	
Gantt		3- 8-49		Min		11	7.4	71.5	1.0	0.91	6.5	15	80	17	18	
Patsaliga Creek	94.0	2- 1-49	5	Avg	1000	15	8.1	78.8	0.9	43	6.7	30	95	25	26	
Highway 9, Luverne		to		Max	1500	19	10.4	87.6	1.4	93	6.7	65	120	29	38	
		2-23-49		Min	630	8	6.8	64.1	0.4	15	6.6	15	80	19	18	
Little Patsaliga	93.0	2- 1-49	5	Avg	430	14	8.5	82.4	0.7	99	6.7	25	90	22	24	
Creek, Highway 10		to		Max	650	19	11.0	92.7	2.0	220	6.7	65	120	27	33	
Rutledge		2-23-49		Min	300	8	6.6	62.3	0.0	15	6.6	15	80	15	19	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CONECUH																
Conecuh River	57.2	1-19-49	6	Avg	3100	15	8.6	83.6	1.2	22	6.8	20	80	26	22	
Highway 55		to		Max	3600	19	9.2	90.6	1.8	53	6.9	25	100	30	28	
River Falls		3- 2-49		Min	2500	9	7.4	71.5	0.8	2.1	6.7	15	70	22	18	
Branch, 3 miles	58.0	1-19-49	6	Avg	28	14	8.5	82.4	1.8	1500(4)	6.7	45	65	29	22	
Below septic tank		to		Max	54	19	10.2	90.6	2.2	2400	6.9	150	80	32	28	
outfall, Andalusia		3- 2-49		Min	16	8	7.8	70.4	1.4	91	6.6	10	50	25	18	
Branch, Highway 55	56.8	1-19-49	6	Avg	30	14	8.6	83.0	2.0	1600	6.7	65	65	27	21	
1 mile above		to		Max	60	19	10.0	90.6	4.0	2400	6.8	250	80	31	25	
Conecuh River		3- 2-49		Min	19	7	8.0	74.0	1.2	91	6.5	15	50	24	14	
Conecuh River	47.8	1-19-49	6	Avg	3000	16	9.1	90.0	2.2	24	6.8	25	75	27	21	
Beck Community		to		Max	3600	19	10.4	95.9	4.8	43	6.9	35	80	34	24	
		3- 8-49		Min	2400	12	7.6	81.7	0.8	4.3	6.7	20	70	22	19	
Persimmon Creek	95.4	6-24-49	11	Avg	41	24	6.8	79.9	1.7	110(10)	6.8	40	75	41	50	
Bridge, Highway 10		to		Max	140	25	7.4	86.8	3.2	460	7.0	200	80	48	50	
Greenville		7-29-49		Min	10	24	5.6	65.7	0.6	3.6	6.5	15	70	32	32	
Persimmon Creek	94.0	6-24-49	10	Avg	34	24	6.2	72.2	1.3	1400	6.7	25	70	42	38	
3/4 mile below east		to		Max	90	25	6.4	76.2	2.2	4600	6.8	65	80	44	46	
sewer outfall, Greenville		7-29-49		Min	11	24	5.4	63.3	0.6	150	6.6	20	50	38	32	
Persimmon Creek	92.6	6-24-49	11	Avg	32	24	6.4	73.6	0.7	230	6.8	30	70	41	41	
Highway Bridge		to		Max	170	25	7.0	82.1	1.8	460	7.0	35	80	44	50	
2 miles east		7-29-49		Min	14	24	4.0	46.9	0.0	36	6.7	20	50	35	34	
Greenville																
Branch	92.8	6-24-49	11	Avg	5.6	25	6.1	73.2	4.8	27000(9)	7.0	40	60	75	54	
1 mile below south		to		Max	11	27	7.0	83.4	8.0	93000	7.1	85	80	98	62	
sewer outfall, Greenville		7-29-49		Min	2.7	24	5.0	59.5	3.2	2300	6.3	20	25	52	46	
Persimmon Creek	86.8	6-24-49	11	Avg	145	25	6.5	77.1	0.9	190(10)	6.8	35	80	37	37	
Highway Bridge		to		Max	375	26	7.0	83.4	1.8	930	7.0	150	120	45	46	
7 miles south, Greenville		7-29-49		Min	62	24	4.8	56.3	0.0	36	6.5	20	70	28	30	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CONECUH																
Rocky Creek U. S. Highway 31 1½ miles southwest of Chapman	77.4	5-13-49 to 6- 2-49	9	Avg	5.8(2)	22	5.6	62.9	1.3	90(7)	6.7	10	90	42(8)	31(5)	
				Max	9	24	6.6	73.3	2.2	460	7.0	40	120	68	34	
				Min	2.8	19	4.4	51.6	0.8	3.0	6.4	5	60	21	28	
Persimmon Creek U. S. Highway 31 3½ miles south of Georgiana	73.6	5-13-49 to 6- 2-49	9	Avg	130	21	7.1	78.6	0.8	35(8)	6.7	15	95	27	32(5)	
				Max	300	23	7.4	81.5	1.8	110	6.8	55	200	34	38	
				Min	60	19	6.8	75.5	0.4	2.3	6.4	5	40	14	26	
Sepulga River U. S. Highway 31 10 miles east of Evergreen	58.6	5-13-49 to 6- 2-49	9	Avg	250	22	7.3	82.3	0.9	7.9(5)	6.7	20	80	23	37(5)	
				Max	386	24	7.6	86.0	2.0	23	6.9	105	140	29	46	
				Min	119	19	7.0	79.2	0.4	1.5	6.3	5	50	11	30	
Conecuh River Highway 93. 2½ miles South Brewton	9.2	5-11-49 to 6- 1-49	7	Avg	3600	24	7.3	85.4	0.6	20	6.9	15	75	33	30(5)	
				Max	5500	25	7.6	88.1	1.0	46	7.0	25	100	43	46	
				Min	2200	22	7.2	81.5	0.4	2.3	6.7	10	40	25	18	
Murder Creek U. S. Highway 31 2 miles southwest of Evergreen	34.8	5-13-49 to 6- 2-49	9	Avg	290	20	7.4	80.7	0.6	6.7	6.6	35	105	19	29(5)	
				Max	911	22	8.0	86.0	2.6	23	6.7	240	400	26	34	
				Min	164	18	6.8	74.1	0.2	1.5	6.3	5	50	13	24	
Branch 1¼ mile below southeast sewer outfall. Evergreen	35.4	5-13-49 to 6- 2-49	9	Avg	0.5	19	6.9	73.9	4.0	410	6.9	10	55	45	40(5)	
				Max	0.6	22	7.6	76.4	6.6	1100	7.0	20	70	53	50	
				Min	0.4	16	6.2	70.2	2.0	91	6.7	5	35	34	30	
Murder Creek 5 miles southwest of Evergreen at Sparta Station	32.4	5-16-49 to 6- 2-49	7	Avg	340	21	7.5	83.8	0.8	16(5)	6.8	20	80	24	31(4)	
				Max	1000	23	8.0	86.6	2.2	46	6.9	110	200	29	36	
				Min	195	19	7.0	77.8	0.4	4.3	6.3	5	40	19	28	
Murder Creek at Castleberry	26.2	5-13-49 to 6- 2-49	9	Avg	420	21	7.8	86.8	.9	200(6)	7.0	10	60	32	35(5)	
				Max	1300	23	8.2	92.0	1.8	460	7.1	35	100	38	40	
				Min	230	19	7.0	77.8	0.4	9.3	6.6	5	35	21	32	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CONECUH																
Conecuh River at Alabama Highway No. 41	56.0	8- 4-58	15	Avg	--	27.9	6.7	84.3	1.0	--	6.8	18	110	31	--	5
		to		Max	--	30.0	7.4	98.3	1.9	--	7.0	37	175	37	--	6
		8-22-58		Min	--	26.0	6.4	79.3	0.6	--	6.5	10	70	16	--	3
FLORIDA																
Conecuh River at Mouth of Little Escambia Creek	46.0	8-14-58	7	Avg	--	28	6.4	80.7	1.8	--	6.7	18	98	31	--	11
		to		Max	--	29	6.6	83.4	2.6	--	6.8	30	110	33	--	14
		8-22-58		Min	--	28	5.9	74.5	1.1	--	6.7	10	80	29	--	8
Escambia River at Florida Highway No. 4, near Century, Fla.	40.5	8- 4-58	15	Avg	2,800	27.9	6.1	78.6	1.4	--	6.8	17	98.4	27.8	--	11.4
		to		Max	4,260	29	6.9	83.8	2.2	--	7.2	40	175	34	--	24
		8-22-58		Min	2,090	26	5.4	66.9	0.6	--	6.4	8	70	20	--	2
Escambia River, near Bluff Springs, Fla.	35.5	8- 5-58	14	Avg	--	27.7	5.8	72.8	1.3	--	6.8	15	118	28.3	--	11.3
		to		Max	--	29	6.2	78.3	2.2	--	7.2	30	250	35	--	20
		8-22-58		Min	--	27	5.2	63.4	0.4	--	6.4	9	70	19	--	2
Escambia River, near Bogia, Fla.	29.5	8- 5-58	14	Avg	--	27.3	5.8	71.9	1.2	--	6.8	17	106	27.4	--	10.5
		to		Max	--	29	6.0	76.8	1.9	--	7.2	37	175	36	--	18
		8-22-58		Min	--	27	5.2	64.4	0.5	--	6.4	10	70	21	--	3
Escambia River, near Pine Barren, Fla.	22.0	8- 5-58	16	Avg	--	27.8	5.7	71.3	1.1	--	6.7	16	106	27.0	--	11.5
		to		Max	--	29	6.3	79.5	2.2	--	7.1	31	175	34	--	23
		8-22-58		Min	--	27	5.3	65.6	0.3	--	6.4	10	70	19	--	2
Escambia River, near Molino, Fla.	16.5	8- 5-58	14	Avg	--	26.9	5.7	70.0	1.0	--	6.6	15	109	25.3	--	9.5
		to		Max	--	28	5.9	73.2	1.5	--	7.1	23	250	25	--	16
		8-22-58		Min	--	26	5.4	63.3	0.5	--	6.2	7	70	19	--	2
Escambia River, at Florida Highway No. 184	10.5	8- 5-58	14	Avg	--	26.9	5.7	69.9	1.0	--	6.7	15	109	26.2	--	10.4
		to		Max	--	28	6.1	75.5	2.1	--	7.0	26	225	34	--	22
		8-22-58		Min	--	26	5.1	63.2	0.5	--	6.3	10	70	20	--	3
Escambia River, two miles south of Highway 184	8.0	8- 5-58	14	Avg	--	26.9	5.2	64.1	1.0	--	7.0	--	81	28.5	--	9.1
		to		Max	--	28	5.6	69.4	2.2	--	7.3	--	100	31	--	16
		8-22-58		Min	--	26	4.8	59.4	0.5	--	6.6	--	75	25	--	4

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
FLORIDA																
ESCAMBIA																
Escambia River, at Spanish Mill Creek	6.0	8- 5-58	14	Avg	--	27.1	5.1	63.7	1.0	--	7.0	--	84	29.1	--	6.7
		to		Max	--	28	5.6	69.4	1.7	--	7.1	--	100	33	--	11
		8-22-58		Min	--	26	4.6	58.1	0.4	--	6.6	--	70	26	--	3
Escambia River, one mile below Spanish Mill Creek	5.0	8- 5-58	14	Avg	--	27.2	5.1	63.4	0.9	--	7.0	--	82	29.6	--	6.8
		to		Max	--	28	5.5	68.2	8.4	--	7.2	--	100	33	--	11
		8-22-58		Min	--	26	4.6	58.1	0.5	--	6.7	--	70	25	--	2
Escambia River, 3.5 miles above mouth	3.5	8- 5-58	14	Avg	--	27.4	4.9	61.8	2.7	--	7.0	--	79	30.8	--	6.5
		to		Max	--	29	5.3	66.9	4.8	--	7.2	--	100	37	--	11
		8-22-58		Min	--	26	4.4	57.0	1.3	--	6.5	--	70	23	--	2
Escambia River, 2.0 miles abouth mouth	2.0	8- 5-58	14	Avg	--	27.6	3.8	48.2	2.0	--	7.0	--	81	30.4	--	10.8
		to		Max	--	29	4.7	59.3	4.1	--	7.2	--	100	37	--	32
		8-22-58		Min	--	26	2.2	27.7	0.6	--	6.6	--	75	25	--	4
Escambia River, Bridge at U. S. Highway 90	0.0	8- 5-58	14	Avg	--	28	2.7	33.1	1.4	--	6.8	--	--	45.1	--	1223
		to		Max	--	29	4.4	53.5	4.0	--	7.2	--	--	74	--	4350
		8-22-58		Min	--	26	0.5	6.3	6.4	--	6.4	--	--	25	--	9

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
CHOCTAWHATCHEE																
Choctawhatchee River	59.6	1-12-49	6	Avg	510	14	8.5	82.7	1.3	17 (4)	6.8	15	75	31	27	
Highway 27. 11 miles		to		Max	640	16	9.0	88.7	3.6	24	7.0	20	80	36	42	
S.W. Abbeville		3- 8-49		Min	370	11	8.0	79.1	0.4	9.3	6.6	5	70	24	20	
Lindsey Creek	86.2	1-31-49	7	Avg		15	6.5	63.8	46	130000(5)	6.8	45	15	56	52	
300' below sewer		to		Max		17	7.0	69.0	104	240000	7.0	75	25	69	64	
outfall, Clayton		3- 7-49		Min		12	6.0	60.3	19.2	9300	6.6	20	10	43	44	
Lindsey Creek	82.6	1-31-49	7	Avg	16	12	9.5	87.4	1.5	97(6)	6.7	15	35	29	25	
4 miles below Clayton		to		Max	40	16	11.0	90.5	2.0	460	6.8	30	60	31	31	
		3- 7-49		Min	8	7	8.4	84.4	0.6	14	6.7	5	25	25	18	
Lindsey Creek	80.2	1-31-49	7	Avg	35	13	9.3	86.1	1.2	72(6)	6.7	15	45	22	21	
7 miles below		to		Max	88	17	10.8	91.1	2.0	240	7.0	20	70	26	33	
Clayton		3- 7-49		Min	17	8	8.0	80.4	0.2	4.3	6.5	10	30	16	17	
West Fork	47.2	1-12-49	6	Avg	1000	14	9.1	88.3	1.0	20	6.9	15	65	21	19	
Choctawhatchee River		to		Max	1300	16	9.6	94.4	2.0	75	7.0	20	70	26	21	
Highway 27, 6 miles S. E., Ozark		3- 8-49		Min	720	11	8.6	84.7	0.0	3.6	6.6	10	60	19	17	
Choctawhatchee River	38.6	1-11-49	8	Avg	1900	15	9.3	90.8	0.7	12	6.8	20	70	22	18	
U. S. Highway 231		to		Max	2400	17	10.8	99.6	1.2	23	6.9	20	80	28	28	
Newton		2-24-49		Min	1400	12	8.6	83.0	0.4	2.1	6.7	15	60	15	12	
Hurricane Creek	44.6	1- 7-49	6	Avg	17	11	9.8	88.0	1.1	9.9	6.4	15	45	15	10	
3 miles south,		to		Max	29	12	10.4	92.1	1.8	21	6.7	25	50	18	16	
Ozark		3-17-49		Min	11	9	9.2	82.9	0.8	3.6	6.1	10	35	10	4	
Branch below	47.4	3- 2-49	6	Avg		15	6.6	64.8	13.4	11000	6.8	30	25	56	18	
Southeast sewer		to		Max		20	7.4	69.5	21.6	21000	6.9	60	25	68	23	
outfall, Ozark		3-25-49		Min		11	5.0	54.5	7.2	2000	6.5	20	25	42	16	
Little Choctawhatchee	45.4	1-11-49	7	Avg	16	15	8.9	86.8	0.9	18	6.6	10	55	19	15	
River, U. S. Highway		to		Max	19	18	10.0	90.6	2.6	46	6.9	15	60	22	20	
231. 2 miles northwest Dothan		3- 4-49		Min	14	10	8.0	83.9	0.2	9.1	6.3	5	20	18	12	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CHOCTAWHATCHEE																
Little Choctawhatchee	42.4	1-11-49	10	Avg	74	15	8.5	83.9	0.8(9)	4.8(6)	6.5	10	25	16	17	
River. 4 miles west		to		Max	110	18	10.2	89.9	1.6	9.1	6.9	10	30	22	29	
Dothan		3-14-49		Min	55	10	6.8	68.3	0.0	2.3	6.2	5	15	11	10	
Beaver Creek	47.0	1-11-49	10	Avg	18	16	4.7	47.2	15.3	160000	6.3	25	30	36	22	
500' below sewage		to		Max	56	19	8.8	85.0	34.0	460000	6.6	60	35	54	29	
treatment plant, Dothan		3- 4-49		Min	10	13	2.4	25.7	7.2	9100	5.5	10	20	2	12	
Little Beaver	43.8	1-11-49	10	Avg	48	16	5.6	55.6	2.7	780	6.3	[illegible]	55	22	17	
3½ miles below sewage		to		Max	117	18	7.0	65.6	4.4	2400	6.4	120	120	26	22	
treatment plant, Dothan		3- 4-49		Min	30	12	4.0	42.0	0.2	150	6.1	10	25	17	12	
Beaver Creek	41.8	1-11-49	10	Avg	85(9)	15	7.7	75.9	1.4	55	6.4	15	70	17	12	
U. S. Highway 84		to		Max	131	18	9.4	84.8	2.2	93	6.6	35	120	24	16	
5 miles west of Dothan		3-14-49		Min	55	11	6.6	66.3	0.4	4.3	6.2	10	35	14	8	
Little Choctawhatchee	39.4	1-11-49	10	Avg	210	15	8.2	80.5	1.1 (9)	47 (9)	6.4	10	55	16	15	
River. 2 miles below		to		Max	280	18	10.2	89.9	2.2	150	6.6	20	70	20	26	
mouth. Beaver Creek		3-14-49		Min	150	10	6.4	64.3	0.0	9.1	6.2	5	25	14	8	
Little Choctawhatchee	36.6	1-11-49	10	Avg	260	15	8.2	81.3	0.8	17(9)	6.5	10	60	16	15	
River, 5 miles below mouth,		to		Max	310	18	10.0	90.3	1.8	43	6.8	25	80	20	22	
Beaver Creek		3-14-49		Min	180	11	6.6	66.3	0.0	7.5	6.3	5	30	14	8	
Little Choctawhatchee	33.0	1-11-49	6	Avg	370	16	8.3	83.8	0.8	47	6.5	15	65	17	15	
River. Highway 66		to		Max	540	18	9.0	88.7	1.2	240	6.7	35	80	22	22	
4 miles south Newton		2-17-49		Min	280	15	7.0	70.3	0.2	3.9	6.3	10	50	14	8	
Choctawhatchee River	27.4	1-11-49	6	Avg	2500	16	8.3	82.7	0.7	67(5)	6.5	25	70	19	17	
U. S. Highway 84		to		Max	3600	17	8.8	88.4	1.6	240	6.8	50	100	23	26	
2 miles east, Clayhatchee		2-17-49		Min	1700	14	7.2	70.9	0.0	1.5	6.3	10	60	16	12	
Hurricane Creek	37.0	1-24-49	6	Avg	5.1	16	6.7	66.3	1.3	26(4)	6.1	15	65	14	13	
1½ miles below		to		Max	14	20	7.8	74.9	2.2	46	6.2	20	80	19	17	
septic tank outfall		3- 4-49		Min	2.2	11	4.4	48.0	0.6	7.3	6.1	5	50	7	7	
Slocomb																

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CHOCTAWHATCHEE Cont'd																
Hurricane Creek 2½ miles below septic tank outfall, Slocomb	36.2	1-24-49 to 3- 4-49	6	Avg	12	16	6.4	63.0	1.1	12(4)	6.1	15	55	13	12	
				Max	35	20	8.0	72.2	1.8	23	6.2	20	80	18	20	
				Min	4.3	11	5.0	53.6	0.2	3.6	6.0	5	40	8	6	
Mill Creek 1½ miles below septic tank outfall, Hartford	27.8	1-19-49 to 2-23-49	6	Avg	7	18	6.4	66.9	2.1	500	6.1	10	55	14	13	
				Max	10	20	7.2	75.5	3.0	1500	6.2	15	60	16	21	
				Min	5	15	5.8	59.7	1.0	150	6.0	5	40	11	9	
Mill Creek 2½ miles below septic tank outfall, Hartford	26.8	1-19-49 to 2-23-49	6	Avg	8	18	7.4	77.1	1.2	150	6.2	10	50	12	[illegible]	
				Max	13	20	8.2	86.0	2.0	460	6.3	15	60	16	17	
				Min	7	16	6.4	69.8	0.2	36	6.1	5	40	11	8	
Hurricane Creek 2 miles above mouth	24.6	1-19-49 to 2-23-49	6	Avg	165	18	7.8	81.8	0.8	58	6.5	20	60	19	17	
				Max	215	20	8.6	90.1	1.2	240	6.7	30	70	22	19	
				Min	135	14	7.2	75.5	0.0	3.0	6.1	15	50	15	14	
Bear Creek Highway 27, 3 miles West Ozark	42.5	1- 7-49 to 3-17-49	6	Avg	74	12	9.3	85.5	0.9	240(5)	6.4	65	65	14	8	
				Max	118	13	10.0	90.5	1.4	1100	6.9	220	90	16	10	
				Min	43	11	8.8	81.1	0.4	3.6	6.0	16	50	10	4	
Branch Highway 27, 1 mile West Ozark	45.0	1- 7-49 to 3-17-49	6	Avg	24	11	9.6	86.1	0.9	410	6.5	20	45	15	12	
				Max	36	12	10.4	91.6	1.0	1100	6.7	35	50	17	14	
				Min	13	9	8.4	77.5	0.6	43	6.2	15	35	12	10	
Tholocco Lake Claybank Creek 1 mile above dam	39.6	3- 2-49 to 3-17-49	4	Avg		15	8.9	87.2	1.1	7.6(3)	6.6	35	70	17	12	
				Max		15	9.2	88.7	1.4	9.3	6.6	65	70	20	15	
				Min		14	8.6	84.7	0.6	4.3	6.4	20	70	13	11	
Indian Camp Creek 1500' below sewer outfall, Enterprise	41.0	2- 1-49 to 3- 4-49	6	Avg	2.8	15	5.9	56.4	25.2	82000(5)	6.6	25	35	41	24	
				Max	3.8	19	8.6	74.2	44.0	210000	6.7	40	60	50	27	
				Min	2.3	9	5.0	49.1	12.0	4300	6.5	15	20	34	19	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CHOCTAWHATCHEE Cont'd																
Indian Camp Creek	38.8	2-22-49	6	Avg	5(3)	13	7.3	68.7	1.4	280(5)	6.5	20	65	19	15	
3 miles below sewer		to		Max	5	17	8.0	72.3	1.8	430	6.7	35	70	23	20	
outfall, Enterprise		3-22-49		Min	4	8	6.2	63.9	1.2	73	6.3	10	35	18	10	
Claybank Creek	26.4	1-26-49	6	Avg	620	16	8.6	85.8	1.1	35	6.5	50	70	15	13	
U. S. Highway 84		to		Max	900	18	9.6	90.5	2.4	93	6.7	190	80	17	18	
Clayhatchee		3- 2-49		Min	400	12	7.6	78.4	0.2	3.6	6.4	15	60	11	8	
Choctawhatchee River	18.4	1-24-49	5	Avg	3100	15	7.9	77.1	1.0	290(4)	6.7	25	70	19	18	
Railroad Bridge		to		Max	3400	18	8.4	32.5	1.6	1100	6.9	30	100	26	23	
Bellwood		3-17-49		Min	2600	12	7.0	73.4	0.6	3.6	6.6	20	50	16	14	
Choctawhatchee River	5.2	1-20-49	6	Avg	3800	16	7.9	79.4	1.2	34	6.7	25	70	20	18	
Highway 12		to		Max	5200	18	8.6	88.6	1.6	93	6.8	35	100	24	24	
Geneva		2-28-49		Min	2900	12	6.8	71.3	0.8	7.3	6.6	20	50	18	15	
Blanket Creek	32.2	2-22-49	6	Avg		16	3.5	34.4	79	170000	6.9	60	45	103	40	
1000' below outfall		to		Max		19	4.4	42.5	128	460000	7.2	150	100	166	58	
sewage treatment		3-22-49		Min		14	2.0	21.4	34.0	43000	6.7	35	10	69	30	
plant. Enterprise																
Blanket Creek	30.2	2-1-49	6	Avg	18	14	6.4	60.1	3.9	1300	6.5	35	80	23	14	
2½ miles below		to		Max	28	18	9.8	80.6	7.2	4600	6.7	65	100	36	22	
outfall. Sewage		3-4-49		Min	12	7	4.2	44.1	1.4	240	6.2	20	60	17	8	
treatment plant																
Enterprise																
Pea River	98.6	1-28-49	4	Avg	1000	16	7.9	79.0	0.8	15	6.5	15	90	20	21	
Highway 10. 6 miles		to		Max	1300	17	8.6	81.1	1.2	43	6.6	20	120	22	23	
East Brundidge		2-21-4		Min	500	13	7.2	74.2	0.4	3.0	6.4	10	70	18	17	
Faulk Creek	104.4	1-31-49	6	Avg		16	8.1	80.9	16.3	22000	6.7	50	25	32	23	
1500' below septic		to		Max		19	9.4	88.7	34.0	46000	6.9	125	35	46	35	
tank outfall, Clio		3- 7-49		Min		11	7.2	77.4	4.0	9300	6.5	20	15	20	16	
Faulk Creek	103.4	2-14-49	5	Avg	7	16	9.0	88.4	1.2	1000	6.7	15	45	27	23	
1½ miles below		to		Max	8	18	10.6	93.4	1.6	2400	6.8	20	60	29	24	
septic tank outfall		3- 7-49		Min	5	10	8.4	88.1	0.4	210	6.7	15	30	24	22	
Clio																

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA CHOCTAWHATCHEE Cont'd																
Pea River U. S. Highway 231 3 miles west Ariton	87.4	1-28-49 to 3-15-49	6	Avg	1300	15	8.7	85.9	1.2	55	6.7	45	80	24	21	
				Max	1900	18	9.4	90.1	1.6	240	7.0	150	120	29	27	
				Min	760	12	8.0	82.5	0.6	4.3	6.5	10	60	20	17	
Pea River 20 miles above Elba	78.2	1-26-49 to 2-23-49	7	Avg	1400	14	8.9	85.7	0.8	62	6.8	30	85	21	23(6)	
				Max	2200	17	11.0	92.7	1.0	240	7.3	60	120	28	34	
				Min	940	8	8.2	75.8	0.6	7.3	6.5	15	70	17	14	
White Water Creek U. S. Highway 231 2 miles N. W., Brundidge	87.8	1-28-49 to 2-22-49	5	Avg	34	17	8.5	66.8	0.5	25	6.7	15	65	27	23	
				Max	44	18	9.0	90.7	1.0	93	6.8	20	70	33	32	
				Min	26	15	7.8	78.4	0.0	2.0	6.6	15	50	21	19	
Walnut Creek U. S. Highway 231 3 miles S.E. Troy	89.2	1-28-49 to 2-22-49	5	Avg	65	16	9.1	92.9	0.7	11(4)	6.5	15	65	17	25	
				Max	74	18	10.0	100.5	2.0	23	6.6	35	70	20	31	
				Min	60	14	7.8	78.4	0.0	2.3	6.4	5	60	15	22	
Mims Creek 2 miles below S.W. sewer outfall, Brundidge	85.4	2-14-49 to 3- 9-49	5	Avg	13	15	9.1	89.0	0.7	63	6.8	15	55	34	24	
				Max	17	20	10.2	90.4	1.0	240	6.9	20	60	40	28	
				Min	11	10	8.2	86.8	0.6	9.1	6.7	10	40	31	22	
Mims Creek 4 miles S. W. Brundidge	83.6	2-14-49 to 3- 9-49	5	Avg	4	14	9.4	90.2	1.0	13	6.8	15	55	34	27	
				Max	5	19	10.6	94.6	1.6	23	7.0	20	60	40	30	
				Min	3	9	8.4	86.8	0.8	3.6	6.6	10	35	24	22	
Pea River U. S. Highway 84 Elba	59.4	1-26-49 to 2-23-49	7	Avg		15	8.9	86.9	0.7	62	6.9	35	85	25	24	
				Max		18	11.0	92.8	1.2	240	7.4	70	120	33	39	
				Min		8	7.8	75.3	0.4	9.1	6.6	10	60	19	15	
Pea River sewer outfall Railroad Bridge Elba	58.8	1-26-49 to 2-23-49	7	Avg		15	8.9	86.9	1.3	160	6.8	35	85	24	22	
				Max		18	11.0	92.7	1.8	240	7.0	65	120	29	32	
				Min		8	8.0	78.8	0.4	3.6	6.5	10	60	18	17	
Pea River 12 miles south Elba	46.8	1-26-49 to 2-23-49	6	Avg	3200	16	9.2	92.5	0.9	79	6.7	40	85	22	19	
				Max	4500	18	9.8	94.5	1.6	150	6.8	95	120	25	28	
				Min	1800	14	8.8	86.7	0.2	14	6.7	15	60	18	15	
Boyenton Creek 1500' below west sewer outfall, Samson	33.4	1-18-49 to 3-17-49	6	Avg	5	15	6.5	62.6	1.8	130	6.4	5	70	23	19	
				Max	8	18	8.0	77.2	2.6	460	6.5	10	100	27	27	
				Min	4	11	4.6	47.2	1.0	43	6.3	5	50	20	14	

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
CHOCTAWHATCHEE Cont'd																
Pea River	30.8	1-18-49	6	Avg	2800(5)	15	8.1	80.8	1.3	230	6.8	30	75	27	19	
Highway 12		to		Max	4000	17	9.2	94.4	2.4	1100	6.9	50	100	31	26	
3 miles west Samson		3-17-49		Min	2100	11	7.0	72.1	0.6	15	6.7	15	60	24	14	
Corner Creek	39.4	1-18-49	6	Avg	3.2	14	4.2	40.1	2.6	1300(5)	6.1	15	155	24	20	
1 mile below sewer		to		Max	5.5	19	6.2	54.6	3.6	4600	6.2	20	200	33	32	
outfall, Florala		2-24-49		Min	1.2	10	2.4	25.7	1.8	230	6.1	10	140	15	12	
Corner Creek	38.0	1-18-49	6	Avg	7	15	6.2	60.2	1.2	40	6.1	10	140	16	15	
2½ miles below sewer		to		Max	12	19	7.8	81.8	2.4	110	6.2	20	160	22	22	
outfall, Florala		2-24-49		Min	3	10	1.4	13.8	0.0	15	5.9	5	120	9	9	
Corner Creek	35.2	1-18-49	6	Avg	27	15	7.2	70.3	1.0(5)	13(5)	6.1	10	120	16	12	
6 miles N. E.		to		Max	38	18	8.0	75.5	1.6	24	6.2	15	140	24	18	
Florala		2-24-49		Min	14	9	6.0	60.3	0.0	3.6	6.1	5	80	8	8	
Sandy Creek	18.8	1-18-49	6	Avg	4.7	15	6.8	65.5	1.4	34	6.5	10	60	27	22	
2 miles below south		to		Max	8	19	8.8	79.4	1.6	43	6.6	15	80	35	27	
sewer outfall, Samson		3-17-49		Min	3.3	11	4.4	45.2	1.0	9.1	6.3	5	50	16	14	
Pea River	5.2	1-20-49	6	Avg	4000	15	7.7	76.2	1.0	59	6.8	25	65	25	21	
Highway Bridge		to		Max	6300	18	8.8	86.4	1.2	240	6.8	60	80	28	24	
Geneva		3-17-49		Min	2700	11	6.6	68.0	0.6	9.1	6.7	20	50	22	17	
Choctawhatchee	0.2	2-23-49	3	Avg	9700	16	7.2	73.0	1.3	110	6.6	30	65	22	20	
River, Florida-Alabama		to		Max	11500	19	7.4	75.2	1.6	150	6.7	45	80	26	21	
State Line		3-17-49		Min	7700	14	7.0	69.5	1.0	9.1	6.5	20	60	20	17	
PERDIDO																
Perdido River	48.8	5-11-49	8	Avg	95	21	7.1	78.1	0.6	2.3*	5.9	5	60	7	6(5)	
U. S. Highway 31		to		Max	215	23	7.4	80.7	0.8	24	6.0	5	70	10	8	
6 miles west of		6- 1-49		Min	65	19	6.6	70.2	0.4	0.91	5.9	5	60	5	6	
Atmore																
Boggy Branch	50.9	5-11-49	9	Avg	1.2	24	7.4	87.0	1.2	93*	6.1	5	20	11	17(5)	
1½ miles below sewer		to		Max	4.4	26	7.6	90.5	2.0	1100	6.3	10	80	37	20	
outfall, Atmore		6- 1-49		Min	0.4	23	7.0	82.1	0.8	4.3	5.6	5	5	6	14	

*Median

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA PERDIDO Cont'd																
Boggy Branch ¼ mile below sewer outfall, Atmore	50.3	5-11-49 to 6- 1-49	9	Avg	4	21	3.5	38.8	4.0	230*	6.1	5	25	26	12(5)	
				Max	5	24	4.6	49.5	4.8	2400	6.2	5	35	29	16	
				Min	3	19	2.4	28.1	1.2	23	5.9	5	5	22	8	
Boggy Branch U. S. Highway 31 Atmore	49.1	5-11-49 to 6- 1-49	9	Avg	6.3	21	7.1	78.8	1.6	67*(8)	6.1	5	50	10	13(5)	
				Max	8.2	24	7.8	88.3	3.8	460	6.2	15	80	11	18	
				Min	5.3	19	6.0	69.0	1.0	23	5.6	5	30	9	8	
Hollinger Creek 4 miles east Bay Minette	40.6	2- 7-49 to 2-14-49	7	Avg	11	15	3.7	37.1	4.7	2.3*	6.2	10	105	17		
				Max	15	19	5.2	52.4	13.2	21	6.4	15	160	26		
				Min	9	11	1.0	10.7	2.0	2.0	6.0	5	70	12		
Perdido Bay Highway 89, ¼ distance from West Bank		1-10-49 to 2- 1-49	6	Avg		17(3)	8.1(3)	83.1(3)	0.6(3)	0.92*	7.2(3)	10(3)		52(3)		3660(2)
				Max		17	8.4	84.4	1.1	9.3	7.3	15		55		3720
				Min		16	8.0	82.5	0.0	0.36	7.1	5		42		3600
Perdido Bay Highway 89 ¼ distance from East Bank		1-10-49 to 2- 1-49	6	Avg		16(3)	7.4(3)	77.7(3)	0.2	2.2*	7.3(3)	7		44(3)		4200(2)
				Max		18	8.6	90.1	0.4	9.3	7.6	10		48		4440
				Min		17	5.6	57.7	0.0	0.36	7.0	5		46		3960
Branch, Northeast corner city limits Robertsdale	25.2	1-24-49 to 2- 8-49	7	Avg	2.3	17	4.8	48.2	5.9(6)	1100*	6.0	10	90	14		
				Max	3.5	20	7.1	69.0	12.8	11000	6.3	30	120	18		
				Min	1.5	8	2.6	28.4	1.8	91	6.0	5	70	12		
Perdido Bay Mouth of Palmetto Creek		1-31-49 to 2-11-49	4	Avg						0.43*						9120
				Max						0.93						9960
				Min						-0.030						7080
Perdido Bay ½ mile south Perdido Beach		1-31-49 to 2-11-49	4	Avg						0.23*						9570
				Max						0.43						10800
				Min						0.036						6960
Portage Creek Mouth Channel marker Fr '136'		1-12-49 to 2-11-49	6	Avg						0.23*						8380(4)
				Max						0.43						10080
				Min						-0.030						6900

*Median

(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		5-Day Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA																
PERDIDO Cont'd																
West End		1-12-49	6							0.13*						7170(4)
Wolf Bay		to								0.43						7680
¼ mile North Channel		2-11-49								-0.030						6480
Marker FLW '123'																
Branch	5.2	1- 6-49	11	Avg	2.9	18	1.9	19.7	1.6	9.1*	5.9	5	20(7)	12(10)		
Highway 89		to		Max	6.0	21	3.4	33.5	4.6	75	6.2	10	30	16		
¼ mile below sewage		1-24-49		Min	2.5	15	1.0	11.0	0.5	0.23	5.5	5	10	6		
treatment plant, Foley																
Wolf Creek	2.0	1- 6-49	9	Avg		17(6)	7.8(6)	81.3(6)	0.3(6)	4.3*	6.0(6)	5(6)	15(2)	5(4)		
1 mile above mouth		to		Max		20	8.5	83.7	0.4	46	6.0	5	20	6		
		2- 4-49		Min		15	7.3	79.6	0.3	0.91	5.8	5	10	2		
Sandy Creek	1.6	1- 6-49	8	Avg		19(5)	3.4(5)	35.6(5)	0.6(5)	5.8*	7.1(5)	5(5)	10(2)	61(4)		340(3)
¼ mile above mouth		to		Max		21	7.0	72.1	1.1	46	7.4	10	10	70		720
of Wolf Creek		2- 4-49		Min		17	0.7	7.8	0.2	2.3	6.9	5	10	51		50
Wolf Bay		1-12-49	6	Avg						1.4*						7480(4)
Above mouth of		to		Max						4.6						10920
Graham Creek		2-11-49		Min						0.091						3300
Wolf Bay		1-12-49	6	Avg						0.18*						7560
Opposite Mulberry Pt.		to		Max						0.93						9120
		2-11-49		Min						0.023						5520
Wolf Bay opposite		1-12-49	6	Avg						0.16*						10350
Orange Beach at Channel		to		Max						0.43						12120
Marker FLW '105'		2-11-49		Min						0.036						7200
Bay La Launch		1-12-49	6	Avg						0.16*						11610
Opposite Hatchet		to		Max						0.43						13320
Point at Channel		2-11-49		Min						0.030						8040
Marker SFLR '88'																

*Median

(8/1/61)

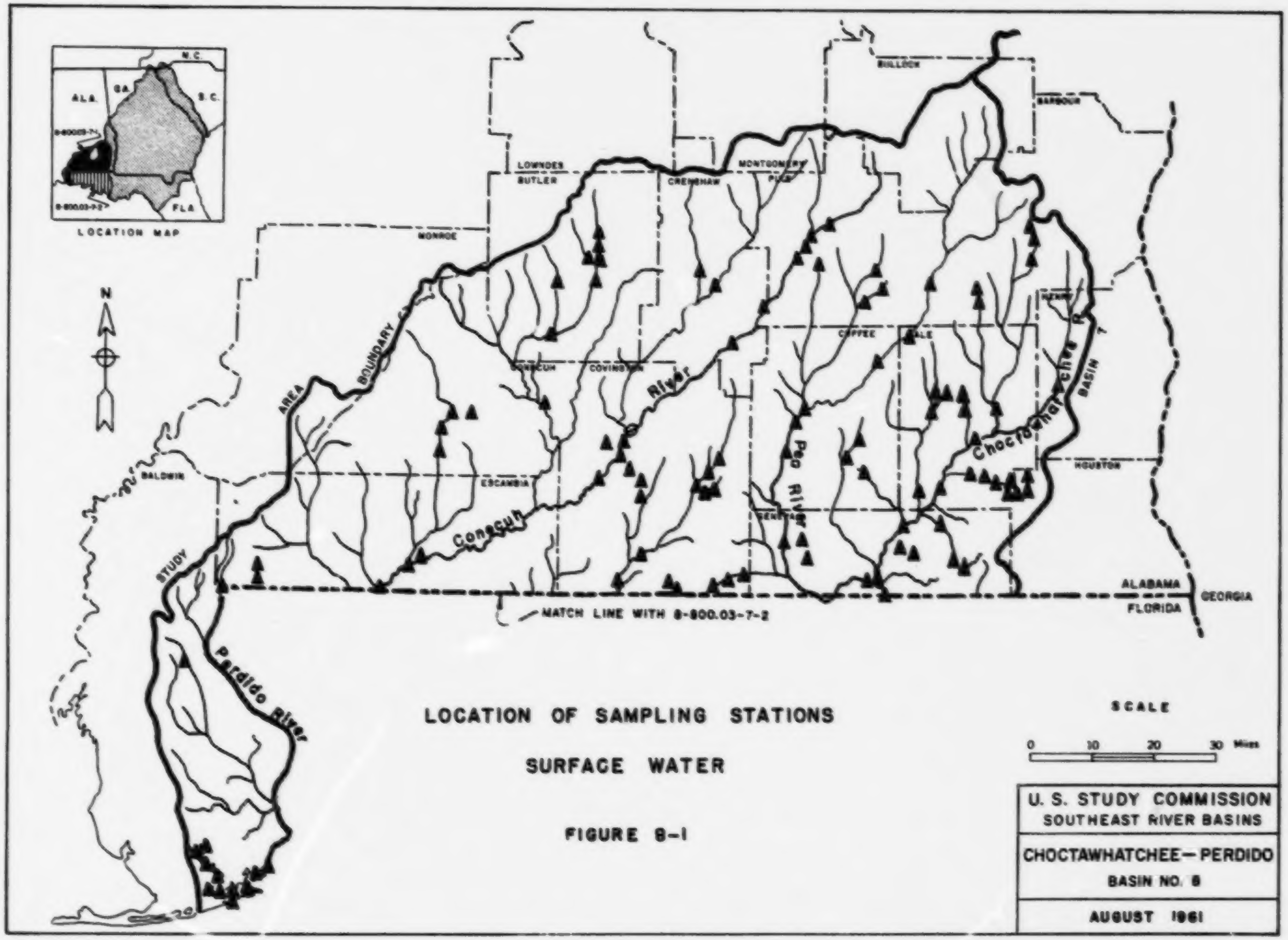
TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degree Cent.	Dissolved Oxygen		Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
							Parts Per Million	Percent Saturation								
ALABAMA PERDIDO Cont'd																
Arnica Bay		1-12-49	6	Avg						0.12*						11190
¼ mile south		to		Max						0.43						12720
Josephine		2-11-49		Min						0.036						8160
Perdido Bay		1-12-49	6	Avg						0.23*						11610
Opposite Ross Pt. at		to		Max						0.75						15720
Channel Marker		2-11-49		Min						0.036						6600
FLP '74'																
Bayou St. John		1-12-49	6	Avg						0.091*						9540
Opposite Bear Point		to		Max						1.5						10680
		2-11-49		Min						0.030						7200
YELLOW																
Lightwood Knot Creek	28.8	1-18-49	10	Avg	72	13	7.9	74.7	1.4(9)	68	6.4	35	80	15	12	
Bridge 2 miles N. W.		to		Max	130	17	9.8	82.6	2.2	240	6.7	160	120	20	19	
Opp and 2 miles below		3-22-49		Min	36	8	6.6	65.6	0.4	3.6	6.1	15	60	10	8	
sewer outfall																
Lightwood Knot Creek	26.2	1-18-49	10	Avg	260	13	7.6	71.2	0.9	30	6.3	20	80	17	13	
Bridge, Highway 12		to		Max	390	18	9.4	82.4	1.4	93	6.5	30	120	22	18	
4 miles west, Opp		3-22-49		Min	180	8	6.2	59.0	0.0	3.6	6.3	10	70	12	9	
Yellow River	22.4	1-18-49	6	Avg	320	13	8.2	76.8	1.8	26	6.5	15	85	17	13	
Bridge 1 mile below		to		Max	440	19	9.4	82.5	5.8	110	6.7	20	120	26	17	
Lightwood Knot Creek		3- 2-49		Min	230	8	7.0	68.6	0.4	3.6	6.4	10	60	9	8	
Indian Creek	24.8	1-18-49	10	Avg	13	13	7.0	65.5	2.7	300	6.5	25	70	26	20	
2 miles below sewer		to		Max	30	18	8.6	82.4	7.0	1100	6.6	85	80	32	28	
outfall, Opp		3-22-49		Min	3	8	5.8	57.1	1.0	23	6.3	5	50	15	13	
Indian Creek	22.0	1-18-49	10	Avg	33	13	7.4	69.1	1.1	71(9)	6.3	15	70	20	16	
5 miles S.W., Opp		to		Max	46	19	9.2	78.4	2.0	240	6.4	25	100	32	21	
		3-22-49		Min	12	8	6.0	60.3	0.2	9.1	6.1	5	50	14	13	
Yellow River	11.2	1-18-49	6	Avg	670	16	7.9	79.1	1.3(5)	9.5	6.7	15	65	25	20	
Bridge Highway 55		to		Max	950	18	9.0	86.5	2.2	24	6.9	20	70	29	31	
9 miles N. W. Lockhart		2-24-49		Min	550	9	6.6	69.2	0.6	2.3	6.6	5	50	21	17	

*Median
(8/1/61)

TABLE 8-1 (CONT'D)
WATER QUALITY CHARACTERISTICS
SURFACE WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE
(All values in ppm except as noted)

Sampling Station	Mileage From Mouth	Period of Analysis	No. of Analyses		Average Discharge Cu. Ft. Per Sec.	Temperature Degrees Cent.	Dissolved Oxygen Parts Per Million	Dissolved Oxygen Percent Saturation	Biochemical Oxygen Demand Parts Per Million	Coliforms, Most Probable Number Per Milliliter	pH Value	Turbidity Parts Per Million	Color Parts Per Million	Total Alkalinity Parts Per Million	Hardness Parts Per Million	Chlorides
ALABAMA																
YELLOW Cont'd																
Bay Branch at septic tank outfall, Andalusia	25.8	1-19-49 to 3-22-49	10	Avg		17	2.4	24.4	174(8)	48000(8)	6.9	180	50	126	34	
				Max		20	3.8	37.1	460	93000	7.1	380	60	177	42	
				Min		12	0.2	2.2	44	21000	6.7	20	20	71	30	
Bay Branch 2 miles below septic tank outfall, Andalusia	23.8	1-19-49 to 3-22-49	10	Avg	16	15	6.5	63.8	5.8	710(9)	6.6	80	60	39	22	
				Max	80	21	7.8	76.8	10.4	2400	6.8	500	75	48	29	
				Min	5	10	5.2	54.5	2.8	230	6.3	5	40	31	18	
Yellow River 1½ miles above Florida-Alabama State Line	1.6	1-19-49 to 2-24-49	5	Avg	1000	16	8.2	81.4	0.7(4)	18	6.8	10	70	27	24	
				Max	1500	19	9.6	88.1	1.4	43	7.0	15	70	33	29	
				Min	850	10	7.2	70.9	0.0	3.6	6.7	5	60	20	17	
Mill Pond sewer outfall Lockhart	1.2	1-18-49 to 2-24-49	6	Avg		16	8.1	80.7	1.1	4.1(3)	6.6	10	55	20	16	
				Max		20	9.0	86.0	1.6	9.3	6.7	15	100	22	20	
				Min		9	7.4	77.2	0.0	0.73	6.3	5	35	18	12	
Branch, 1½ mile below sewer outfall Lockhart, Florida-Alabama State Line	0.0	1-18-49 to 2-24-49	6	Avg	7	15	8.0	77.9	1.0	17	6.4	5	50	20	16	
				Max	9	19	8.6	88.1	1.6	24	6.4	10	80	24	18	
				Min	2	9	6.8	68.3	0.2	9.1	6.3	5	35	16	13	


N.C.
ALA.
GA.
S.C.
FLA.
8-800.03-7-1
8-800.03-7-2
LOCATION MAP
N
LOWNDES
BUTLER
MONROE
CRENSHAW
MONTGOMERY
PIKE
BULLOCK
BARBOUR
HENRY
COFFEE
DALE
CONECUH
COVINGTON
ESCAMBIA
BALDWIN
GENEVA
HOUSTON
STUDY AREA BOUNDARY
Conecuh River
Pea River
Choctawhatchee
BASIN 7
Perdido River
ALABAMA
FLORIDA
GEORGIA
MATCH LINE WITH 8-800.03-7-2
SCALE
0
10
20
30
Miles

LOCATION OF SAMPLING STATIONS

SURFACE WATER

FIGURE 8-1

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
CHOCTAWHATCHEE—PERDIDO
BASIN NO. 8
AUGUST 1961

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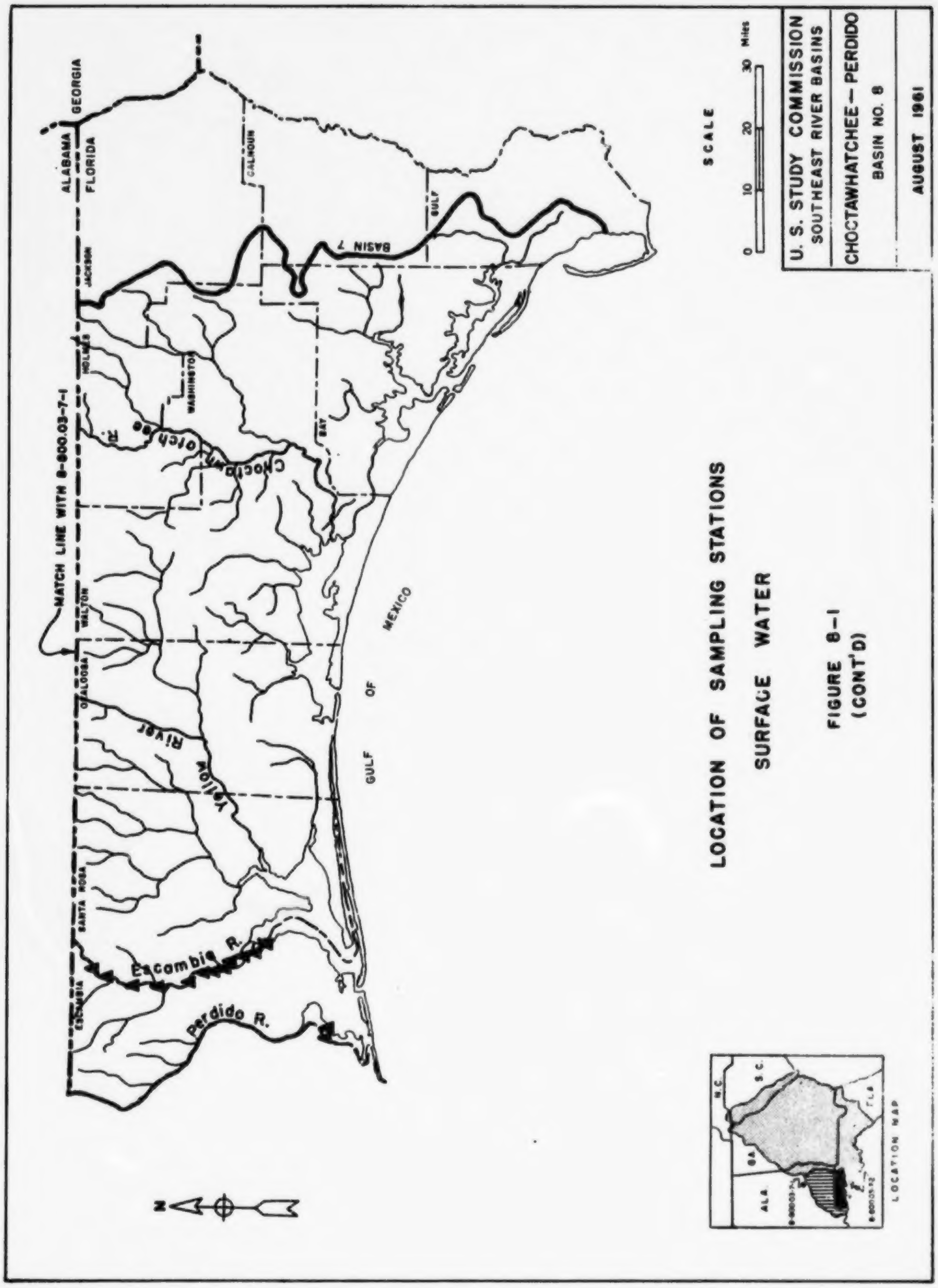
ALABAMA
GEORGIA
FLORIDA
CALHOUN
JACKSON
GULF
BASIN 7
HOLMES
WASHINGTON
BAY
MATCH LINE WITH 8-600.03-7-1
Choctawhatchee R.
WALTON
OKALOOSA
Yellow River
SANTA ROSA
Escambia R.
ESCAMBIA
Perdido R.
GULF OF MEXICO
SCALE
0 10 20 30 Miles
N
N.C.
S.C.
GA.
ALA.
FLA.
LOCATION MAP

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
CHOCTAWHATCHEE — PERDIDO
BASIN NO. 8
AUGUST 1961

LOCATION OF SAMPLING STATIONS
SURFACE WATER

FIGURE 8-1
(CONT'D)

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TABLE 8-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE BASIN

(All values in ppm except as noted)

Sampling Station	Total No. of Analyses	Period of Analyses	Descr. of Aquifer	Total Diss. Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
ALABAMA																	
Union Springs	1	1960	Sand(E-Ts)	149[1]		0.0	3.0	0.4		55	0.0	6.6	0.9	8.9	9	0.0	
Midway	1	1960	Sand(E)	207[1]		0.30	3.0	0.7		55	94.0	13.8	0.09	9.2	10	0.3	
Greenville	1	1960	Sand(P)	437[1]		0.0	5.0	1.8		127	0.0	60.0	0.6	8.6	20	0.5	
Ariton	1	1960	Sand(Na-P)	207[1]		0.18	57.1	4.1		94	Trace	1.2	0.0	8.3	160	0.0	
Brundidge	1	1951	Sand(P-R-Cu)			0.10	8.0	1.0		116	6.0	10.8	0.0	8.8	24	1.6	
Clio	1	1960	Limestone(Cl)	121[1]		0.0	24.5	0.9		37	0.0	4.8	9.2	6.8	65	0.0	
Georgiana	1	1960	Sand(Nf)	429[1]		0.0	1.0	0.6		146	0.0	67.2	0.09	8.9	5	0.8	
McKenzie	1	1960	Sand(Tu)	357[1]		0.0	10.0	2.0		147	53.0	10.8	0.09	8.2	33	0.4	
Dozier	1	1960	Sand(Tu)	233[1]		0.20	32.6	9.6		115	0.0	6.6	0.3	7.9	121	0.15	
Brantley	1	1960	Sand(Nf)	249[1]		Trace	72.1	4.6		124	5.0	2.4	0.0	7.5	199	0.0	
Evergreen	1	1960	Sand(L-Ta)	133[1]		0.08	48.6	1.4		78	0.0	7.2	0.0	7.4	128	0.0	
Andalusia	1	1960	Sand(L-Tu)	262[1]		0.0	4.5	0.0		121	0.0	12.6	0.0	8.8	17	0.2	
Opp	1	1960	Sand(L)	79[1]		Trace	23.0	1.5		38	0.0	3.0	1.3	7.1	64	0.0	
New Brockton	1	1960	Sand(L)	170[1]		0.0	43.6	7.4		97	0.0	3.0	0.35	7.8	139	0.0	
Midland City	1	1960	Sand(Tu-Ta)	192[1]		0.0	21.5	4.8		85	0.0	4.2	0.0	7.8	74	0.1	
Kinston	1	1960	Sand	135[1]		Trace	26.6	9.0		67	0.0	1.2	0.18	8.1	104	Trace	
Coffee Springs	1	1951	Sand(L)	-		Trace	60.0	0.0		81	10.0	4.8	0.0	7.7	150	0.0	
Samson	1	1951	Sand(G)	-		Trace	46.0	0.0		71	9.0	6.0	0.0	7.8	115	0.0	
Castleberry	1	1960	Sand(G)	165[1]		Trace	40.6	1.9		75	0.0	3.0	0.44	7.4	110	0.0	
Brewton	1	1960	Sand(L)	215[1]		0.10	27.6	5.0		89	0.0	3.6	0.26	7.8	90	Trace	
Geneva	1	1951	Sand(L)	-	-	Trace	18.0	0.0		101	6.0	21.0	0.0	8.3	45	0.0	-
FLORIDA																	
Escambia Farms	1	1954	Sand	50		4.10	3.2	1.5		17	10.0	4.0		5.6	14	0.25	10.0

[1] Includes total suspended and dissolved solids.
(8/1/61)

TABLE 8-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE BASIN
(All values in ppm except as noted)

Sampling Station	Total No. of Analyses	Period of Analyses	Descr. of Aquifer	Total Diss. Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA - cont'd.																	
Century	2	1924-48	Sand	105(2)	14.0(1)	1.20(1)	8.8(2)	2.0(2)	10.6(2)	136(2)	4.3(2)	1.9(2)	Trace(1)		31(2)		
Jay	2	1951-59	Sand	52(2)	--	0.0(2)	1.3(2)	1.3(2)	--	5(2)	5.0(2)	3.5(2)		5.3	10(2)	0.03(2)	5(2)
Pine Barren	1	1910	Sand	100	16.0	-	7.7	1.5	13.0	40	8.1	--	--	--	25	--	--
Molino	1	1924	Sand	131	34.0	1.00	20.0	3.1	13.0	95	9.0	3.5	Trace	--	63	--	--
Milton	13	1924-59	Sand	37(13)	4.9(2)	0.21(13)	2.5(13)	1.0(12)	2.3(3)	12(13)	5.6(13)	5.9(13)	Trace(2)	6.0(11)	10(13)	0.03(9)	5(8)
East Milton	1	1956	Sand	42	--	0.03	2.8	0.7		24	28.0	2.0	--	5.6	10	0.05	5
Bagdad	4	1924-59	Sand	22(4)	6.3(1)	0.15(4)	1.5(4)	6.5(4)	2.5(2)	4(4)	5.6(4)	4.2(4)	1.0(1)	5.5(3)	6(4)	0.05(2)	7(2)
Gonzales	2	1956-58	Sand	44(2)	--	0.06(2)	1.5(2)	0.0(2)	--	2(2)	2.0(2)	6.0(2)	--	6.1(2)	5(2)	0.08(2)	5(1)
Pensacola	93	1924-60	Sand	59(86)	10.1(5)	0.61(90)	4.9(69)	6.5(65)	6.8(7)	11(86)	14.6(69)	8.7(91)	2.9(6)	5.6(85)	21(92)	0.09(51)	5(51)
Ensley	3	1958-59	Sand	32(3)	--	0.07(3)	3.3(3)	0.7(3)	--	9(3)	2.3(3)	4.7(3)	--	6.0(3)	10(3)	0.10(3)	--
Warrington	1	1949	Sand	30	2.0	0.15	--	0.8	--	--	1.5	5.2	--	7.0	9	--	--
Gulf Port	1	1954	Sand	17	--	0.63	2.4	0.0	--	12	10.0	10.0	--	5.6	6	0.15	5
Gulf Breeze	6	1956-58	Sand	71(6)	--	0.17(6)	8.1(6)	0.5(6)	--	24(6)	5.7(6)	13.3(6)	--	6.8(6)	23(6)	0.0(6)	25(6)
Holley	1	1959	Sand	44	--	2.90	4.0	2.0	--	14	10.0	9.0	--	5.0	20	0.05	5
Graceville	2	1949-53	Limestone (P.A.)	164(1)	--	0.05(2)	33.0(2)	10.0(2)	--	168(2)	0.0(1)	2.0(2)	--	7.7(2)	127(2)	--	5(1)
Crestview	22	1948-58	Limestone (P.A.)	188(22)	16.0(18)	0.35(20)	21.2(22)	12.1(22)	30.1(19)	168(22)	9.6(22)	15.3(22)	0.19(18)	7.8(22)	103(22)	0.28(21)	8(3)
"	2	---	Unknown	20(2)	7.3(2)	0.41(2)	1.4(2)	0.5(2)	4.1(2)	8(2)	1.8(2)	4.4(2)	0.20(2)	5.6(2)	6(2)	0.0(2)	--
Defuniak Springs	9	1923-60	Limestone (P.A.)	95(5)	11.3(2)	0.03(9)	18.4(9)	8.9(5)	2.8(3)	70(9)	5.0(9)	3.9(9)	1.51(2)	7.8(7)	77(9)	0.11(4)	1(6)
Carryville	2	1924-49	Limestone (P.A.)	168(2)	45.0(1)	0.16(2)	31.5(2)	13.0(2)	5.5(2)	159(2)	6.0(2)	1.9(2)	Trace(1)	7.9(1)	133(2)	0.0(1)	--
Bonifay	8	1924-56	Limestone (P.A.)	155(8)	15.0(1)	0.13(8)	36.6(8)	5.9(8)	0.9(2)	142(8)	5.4(8)	4.6(8)	Trace(1)	7.2(7)	116(8)	0.0(6)	5(5)
Chipley	5	1907-49	Limestone (P.A.)	122(5)	13.7(3)	0.09(5)	38.2(5)	1.1(5)	4.6(5)	128(5)	1.1(5)	2.5(5)	0.17(3)	8.1(2)	100(5)	0.05(2)	5(1)
Vernon	1	1949	Limestone (P.A.)	175	--	0.0	34.0	8.0	6.9	144	0.0	9.0	--	8.0	118	0.0	--

(s/1/el)

TABLE 8-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE BASIN
(All values in ppm except as noted)

Sampling Station	Total No. of Analyses	Period of Analyses	Descr. of Aquifer	Total Diss. Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA - cont'd.																	
Valparaiso	1	1959	Limestone (P.A.)	180	--	0.04	28.0	17.0	--	183	10.0	7.0	--	7.8	142	0.15	5
Niceville	3	1954-58	Limestone (P.A.)	198(3)	--	0.07(3)	21.0(3)	16.0(3)	--	164(3)	35.3(3)	13.7(3)	--	7.6(3)	117(3)	0.18(3)	5(3)
Villa Tasso	1	1959	Limestone (P.A.)	137	--	0.0	20.0	15.0	--	136	10.0	5.0	--	7.8	114	0.20	5
Shalimar	5	1934-59	Limestone (P.A.)	255(5)	12.7(3)	0.15(5)	20.6(5)	4.4(5)	111.3(3)	212(5)	7.1(5)	44.6(5)	1.3(2)	7.4(2)	70(15)	0.13(2)	8(2)
Garnier Beach	1	1958	Limestone (P.A.)	360	--	0.04	6.0	3.0	--	219	9.0	50.0	--	7.6	28	0.85	5
Mary Esther	1	1959	Limestone (P.A.)	500	--	0.0	4.0	5.0	--	200	18.0	92.0	--	8.2	30	--	--
"	2	1954	Unknown	155(2)	--	2.5(2)	28.1(2)	3.9(2)	--	96(2)	49.0(2)	17.5(2)	--	6.2(2)	86(2)	0.23(2)	55(2)
Fort Walton Beach	8	1954-60	Limestone (P.A.)	297(8)	--	0.14(7)	11.4(8)	2.4(8)	--	236(8)	12.2(8)	46.4(8)	--	8.0(7)	34(8)	0.62(7)	14(7)
" " "	2	1954-55	Unknown	83(2)	--	1.34(2)	9.4(2)	1.8(2)	--	33(2)	10.0(2)	33.5(2)	--	6.3(2)	31(2)	0.10(2)	28(2)
Freeport	2	1907	Limestone (P.A.)	112(2)	20.0(1)	0.08(2)	22.0(2)	7.9(2)	8.3(2)	119(2)	6.4(2)	2.2(2)	--	--	87(2)	--	--
Grayton Beach	2	1959	Limestone (P.A.)	688(1)	--	0.0(2)	44.0(1)	26.0(1)	--	191(2)	10.0(1)	262.0(1)	--	8.0(2)	186(2)	0.45(1)	5(2)
Lynn Haven	3	1943-58	Limestone (P.A.)	282(3)	--	0.4(2)	72.0(2)	63.0(3)	4.6(1)	237(3)	16.3(3)	23.3(3)	--	7.0(3)	230(3)	0.35(2)	13(2)
" "	1	1954	Unknown	198	--	0.76	49.0	4.8	--	183	10.0	8.0	--	7.3	142	0.25	10
Panama City	10	1936-60	Unknown	119(6)	5.6(4)	1.29(10)	35.9(10)	2.6(6)	6.7(5)	67(10)	7.9(10)	17.8(10)	0.3(3)	7.6(5)	102(10)	0.05(2)	5(1)
" "	13	1943-59	Limestone (P.A.)	294(12)	19.0(5)	0.19(13)	35.1(13)	26.0(13)	25.4(6)	211(13)	18.3(13)	62.1(13)	0.01(3)	7.4(12)	196(12)	0.24(7)	15(4)
Parker	3	1956-59	Limestone (P.A.)	248(3)	--	0.09(3)	48.3(3)	22.3(3)	--	237(3)	14.3(3)	17.0(3)	--	7.5(3)	214(3)	0.25(3)	7(3)
Laguna Beach	1	1954	Unknown	86	--	0.10	2.4	2.0	--	17	10.0	18.0	--	5.0	14	0.10	20(1)

(8/1/61)

TABLE 6-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
GROUND WATER
PERDIDO - ESCAMBIA - CONECUH - CHOCTAWHATCHEE BASIN
(All values in ppm except as noted)

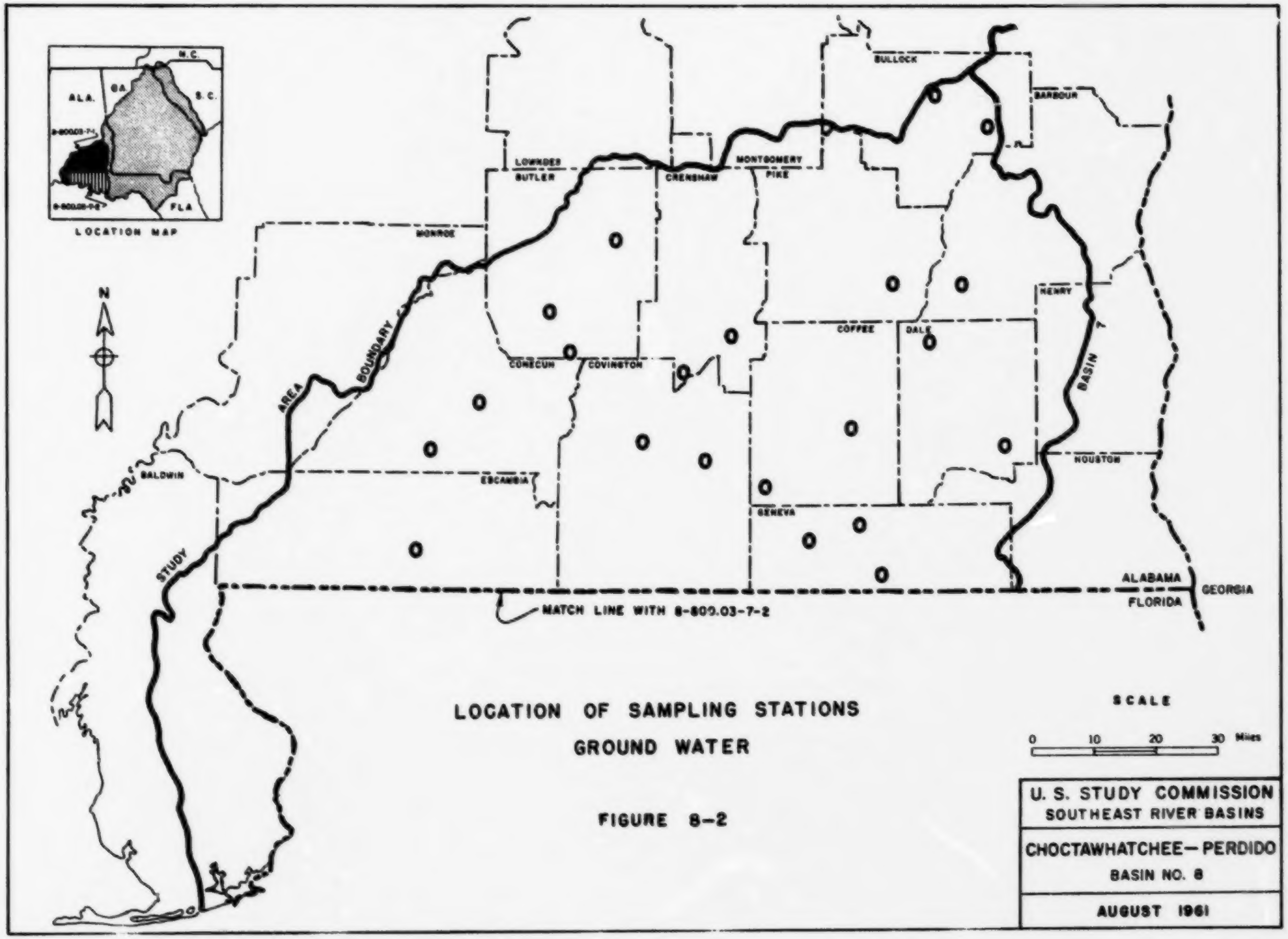
Sampling Station	Total No. of Analyses	Period of Analyses	Descr. of Aquifer	Total Diss. Solids	Silica	Iron	Calcium	Magnesium	Sodium and Potassium	Alkalinity	Sulfate	Chloride	Nitrate	pH	Total Hardness	Fluoride	Color
FLORIDA - cont'd.																	
Gulf Resort Beach	1	1956	Limestone (P.A.)	216	--	0.15	51.0	12.0	--	222	4.0	19.0	--	7.5	178	0.15	5
Edgewater Beach	1	1959	Limestone (P.A.)	248	--	0.10	26.0	26.0	--	229	9.0	28.0	--	7.6	174	0.35	5
Bahama Beach	1	1957	Unknown	170	--	0.0	15.0	12.0	--	149	2.0	6.0	--	7.9	88	--	10
Long Beach	3	1956-59	Limestone (P.A.)	269(3)	--	0.18(3)	29.0(3)	25.3(3)	--	251(3)	12.3(3)	12.7(3)	--	7.6(3)	178(3)	0.83(3)	7(3)
Panama City Beach	2	1953-59	Unknown	153(2)	--	0.15(2)	20.0(2)	16.0(2)	--	82(2)	6.5(2)	10.0(2)	--	8.0(2)	117(2)	0.58(2)	5(2)
Woodlawn	5	1947-59	Limestone (P.A.)	581(5)	12.0(1)	0.35(5)	47.6(5)	36.6(5)	121(1)	277(5)	25.0(5)	164.0(5)	--	7.3(4)	270(5)	0.50(4)	8(4)
St. Andrews State Park	7	1955-59	Limestone (P.A.)	282(7)	--	0.32(7)	23.9(7)	23.0(7)	--	173(7)	17.6(7)	62.1(7)	--	7.9(7)	156(7)	0.75(7)	7(7)
Tyndall AFB	2	--	Limestone (P.A.)	665(2)	6.0(2)	0.0(2)	41.0(2)	22.0(2)	107(2)	183(2)	44.0(2)	155.0(2)	0.80(2)	8.2(1)	160(2)	1.40(2)	--
Mexico Beach	2	1953-55	Limestone (P.A.)	642(2)	--	0.33(2)	25.5(2)	34.5(2)	--	278(2)	163.0(2)	91.5(2)	--	8.0(2)	208(2)	1.80(2)	5(1)
Wewahitchka	1	1948	Unknown	276	--	0.20	27.0	25.0	9	176	10.0	26.0	--	7.8	171	--	--
"	1	1953	Unknown	395	--	--	116.0	7.0	405	0	10.0	--	--	7.1	318	0	5
Port St. Joe	8	1937-51	Limestone (P.A.)	280(8)	18.0(2)	2.28(8)	55.9(8)	16.8(8)	8.9(8)	269(8)	2.9(8)	12.8(8)	0.3(2)	7.5(6)	209(8)	0.68(4)	20(11)
Cape San Blas	1	1956	Unknown	954	--	0.20	13.0	23.0	--	470	88.0	235.0	--	8.4	126	5.50	10
" " "	2	1957	Unknown	7360(2)	--	0.84(2)	307.0(2)	148.0(2)	--	380	219.0(2)	3895.0(2)	--	7.5(2)	1375(2)	7.00(2)	30(2)
C. S. B. Weather Sta.	4	1956-57	Unknown	643(4)	--	0.22(4)	9.8(4)	10.3(4)	--	460(4)	57.5(4)	95.0(4)	--	8.4(4)	67(4)	7.10(4)	9(4)
Indian Pass	2	1956-57	Limestone (P.A.)	288(2)	--	3.90(2)	72.5(2)	17.5(2)	--	313(2)	30.0(2)	9.5(2)	--	7.0(2)	253(2)	0.45(2)	15(2)

E - Eutaw Formation
Ts - Tuscaloosa Formation
P - Providence Sand
R - Ripley Formation
Cu - Cusseta Sand
Cl - Clayton Formation

Nf - Nanafalia Formation
Tu - Tuscahoma Formation
L - Lisbon Formation
Ta - Tallahatta Formation
G - Gosport Sand
PA - Principal Artesian Aquifer

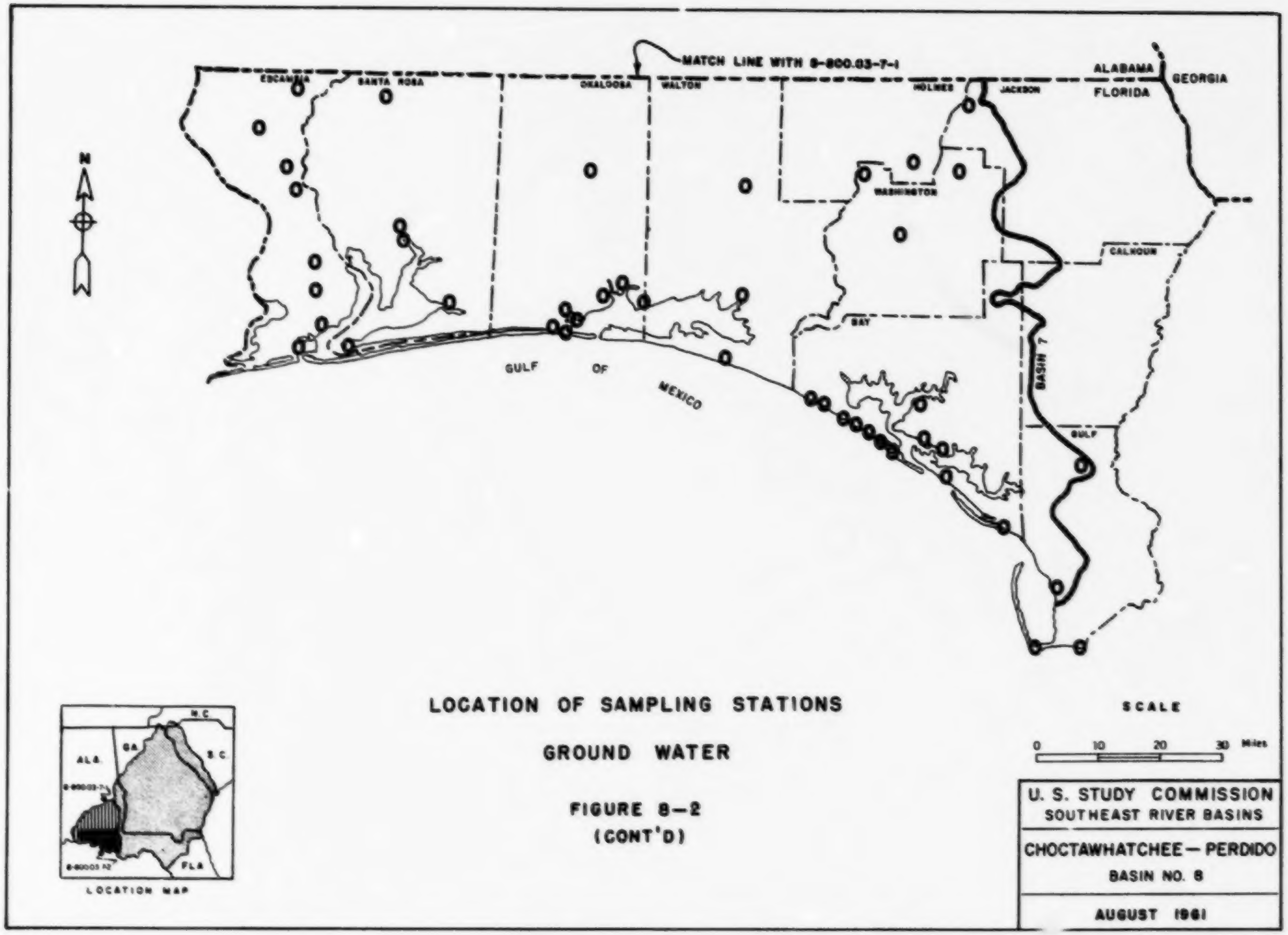
Note: Number in parenthesis shows the number of analyses upon which the average was computed.

(8/1/61)


LOCATION MAP
N.C.
S.C.
GA.
ALA.
FLA.
8-800.03-7-1
8-800.03-7-2
N
BULLOCK
BARBOUR
LOWNDES
BUTLER
CRENSHAW
MONTGOMERY
PIKE
MONROE
HENRY
COFFEE
DALE
CONECUH
COVINGTON
BALDWIN
ESCAMBIA
GENEVA
HOUSTON
STUDY AREA BOUNDARY
BASIN 7
ALABAMA
GEORGIA
FLORIDA
MATCH LINE WITH 8-800.03-7-2
SCALE
0
10
20
30 Miles
U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS
CHOCTAWHATCHEE—PERDIDO
BASIN NO. 8
AUGUST 1961

LOCATION OF SAMPLING STATIONS
GROUND WATER

FIGURE 8-2


MATCH LINE WITH 8-800.03-7-1
ALABAMA
FLORIDA
GEORGIA
ESCAMBIA
SANTA ROSA
OKALOOSA
WALTON
HOLMES
JACKSON
WASHINGTON
CALHOUN
BAY
GULF
BASIN 7
GULF OF MEXICO
N
SCALE
0
10
20
30
Miles
N.C.
S.C.
GA.
ALA.
FLA.
8-800.03-7-1
8-800.03-7-2
LOCATION MAP

LOCATION OF SAMPLING STATIONS

GROUND WATER

FIGURE 8-2
(CONT'D)

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

CHOCTAWHATCHEE — PERDIDO
BASIN NO. 8

AUGUST 1961

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TABLE 8-3
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1) Avg.	Gross Alpha (uuc/1) Max.	Gross Alpha (uuc/1) Avg.	Gross Beta (uuc/1) Avg.	Gross Beta (uuc/1) Max.	Gross Beta (uuc/1) Min.	Remarks
Alabama Surface Waters									
Choctawhatchee River near Geneva on Alabama Hwy 52.	1958-60	9	1.3	2.6	0.3	8.6	26.6	2.1	Seven of nine samples collected summer 1960.
Pea River near Geneva-County Road one mile S.W. of city	1958-60	9	1.6	6.2	0.2	14.5	50.0	5.2	Seven of nine samples collected summer 1960.
Escambia River east of Century, Florida	1958-60	11	1.8	3.5	0.4	27.3	70.6	2.1	
Florida Surface Waters Choctawhatchee Sub-Basin									
Choctawhatchee River at Careyville, U.S. Hwy 90 Bridge	1959-60	6	0.6(3)	1.2	0.2	34.4(4)	79.1	3.7	
Choctawhatchee River at Ebro	1959-60	4	0.1(1)			63.2	241.8	1.3	
Holmes Creek-Hwy 79 Bridge	1958-60	5				37.0(3)	102.5	3.6	
Big Sand Pond	1958	1				32.0			
Bector Pond-two miles north of Vernon	1958	1	0.3			27.0			
Pond-three miles west of Westville on Hwy 90	1958	1	0.3			17.0			
Lake at Hwy 98 and 30-A	1958	2	1.0	1.7	0.4	51.5	83.0	20.0	

(8/15/61)

TABLE 8-3 (CONT'D)
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters (Cont'd) Eastern Portion of Escambia Sub-Basin									
Yellow River, Hwy 87 Bridge	1959-60	6	1.4(4)	2.4	0.1	136.5(5)	633.3	3.5	
Bob Sikes Pond, east of Crestview	1958	2	0.4(1)			28.9	31.4	26.4	
Blackwater River, U.S. 90 Bridge	1959-60	3				29.7(2)	42.0	17.5	
Bass Pond, Ft. Walton Beach	1958	1	0.1			9.2			
Collins Mill Creek, Milton	1958	1	0.1			8.5			
Cypress Pond, Ft. Walton Beach near Mary Esther	1958	1				73.0			
Kepier Pond, Niceville	1958	1				24.0			
Earls Lake, Ft. Walton Bch.	1958	1				31.0			
Kennedy Lake, north of Crestview	1958	1				24.0			
Lake DeFuniak, DeFuniak Sprs.	1958	2				37.5	54.0	21.0	
Lake at Niceville Golf Course	1958	2	0.3	0.4	0.1	20.9	32.0	9.9	
Pond Creek at Hwy 90	1958	1				11.0			

(8/15/61)

TABLE 8-3 (CONT'D)
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1)			Gross Beta (uuc/1)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters (Cont'd) Perdido-Escambia Sub-Basin									
Escambia River-Hwy 90 Bridge ¼ mile below Chemstrand	1958	3	0.2(2)	0.3	0.1	15.6	33.6	5.5	
Escambia River-Hwy184 Bridge	1959-60	6	0.8(3)	0.9	0.8	12.1(5)	36.4	1.0	
Perdido River at Muscogee	1958-60	7	0.4(3)	0.8	0.1	9.7(5)	28.0	1.3	
Gulf Pines Lake	1958	3	0.2(1)			35.5(2)	38.0	33.0	
Florida Ground Water									
Bonifay	1958	1				0.7			Deep well.
Chipley-municipal	1958-60	3	0.5(1)			3.1(1)			Deep well.
Chipley	1959-60	3				3.9(2)	4.0	3.8	Shallow well.
Panama City-19th and Beck	1960	1	0.6			0.7			Deep well-800 feet.
Panama City-1428 Balboa and 15th Street	1960	1	0.47			10.8			Shallow well.
Panama City Beach	1959-60	2	1.7(1)			5.8(1)			Municipal well.
Mexico Beach	1958	1				3.6			Municipal deep well.
Lynn Haven-well no. 1	1958	1	1.3			13.0			Regular mun. supply.
Panama City	1959-60	2	0.3	0.6	0.1	13.9	16.7	11.2	Shallow well.

(8/15/61)

TABLE 8-3 (CONT'D)
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1)			Gross Beta (uuc/1)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Ground Water (Cont'd)									
J.C. Turner north of Crestview Hwy 85	1959-60	3	0.4	0.6	0.2	3.7	5.0	2.7	Shallow well.
Crestview-well No. 2	1958-60	4	0.5(2)	0.7	0.4	2.4	4.7	1.0	Deep well-920 feet.
Casa Blanca S/D -composite of wells 1,2,5,6, and 7	1957	1	0.9			3.3			
Garnier Beach	1958	1				2.8			New well.
East Milton-well No. 2	1958	1	0.3			8.3			Deep well-160 feet.
St. Regis Paper Co. well No. 11, Cantonment	1959-60	2	0.3	0.4	0.2	3.6	4.8	2.4	Deep well.
Century - Hecker & Mayo St.	1960	1	2.3			7.0			Shallow well.
Chemstrand Corp., well No.2	1958	1	0.2			5.6			Deep well-385 feet.
Pensacola, Camp Franklin, 9th Avenue	1958	1	0.3			2.6			City well
Pensacola, Carlann Shores S/D	1959	1	4.9			13.0			Shallow well
Pensacola, Country Club	1958	1	0.2						Well

Note: Number in parentheses shows the number of analyses upon which the average was computed if different than the total number shown.
(8/15/61)

TABLE 8-3 (CONT'D)
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/l)			Gross Beta (uuc/l)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Surface Waters (Cont'd) **Perdido-Escambia Sub-Basin**									
Escambia River-Hwy 90 Bridge ¼ mile below Chemstrand	1958	3	0.2(2)	0.3	0.1	15.6	33.6	5.5	
Escambia River-Hwy184 Bridge	1959-60	6	0.8(3)	0.9	0.8	12.1(5)	36.4	1.0	
Perdido River at Muscogee	1958-60	7	0.4(3)	0.8	0.1	9.7(5)	28.0	1.3	
Gulf Pines Lake	1958	3	0.2(1)			35.5(2)	38.0	33.0	
Florida Ground Water									
Bonifay	1958	1				0.7			Deep well.
Chipley-municipal	1958-60	3	0.5(1)			3.1(1)			Deep well.
Chipley	1959-60	3				3.9(2)	4.0	3.8	Shallow well.
Panama City-19th and Beck	1960	1	0.6			0.7			Deep well-800 feet.
Panama City-1428 Balboa and 15th Street	1960	1	0.47			10.8			Shallow well.
Panama City Beach	1959-60	2	1.7(1)			5.8(1)			Municipal well.
Mexico Beach	1958	1				3.6			Municipal deep well.
Lynn Haven-well no. 1	1958	1	1.3			13.0			Regular mun. supply.
Panama City	1959-60	2	0.3	0.6	0.1	13.9	16.7	11.2	Shallow well.

(8/15/61)

TABLE 8-3 (CONT'D)
RADIOACTIVITY IN WATER
CHOCTAWHATCHEE-PERDIDO BASIN

Sampling Station	Period of Analysis	No. of Analyses	Gross Alpha (uuc/1)			Gross Beta (uuc/1)			Remarks
			Avg.	Max.	Min.	Avg.	Max.	Min.	
Florida Ground Water (Cont'd)									
J.C. Turner north of Crestview Hwy 85	1959-60	3	0.4	0.6	0.2	3.7	5.0	2.7	Shallow well.
Crestview-well No. 2	1958-60	4	0.5(2)	0.7	0.4	2.4	4.7	1.0	Deep well-920 feet.
Casa Blanca S/D -composite of wells 1,2,5,6, and 7	1957	1	0.9			3.3			
Garnier Beach	1958	1				2.8			New well.
East Milton-well No. 2	1958	1	0.3			8.3			Deep well-160 feet.
St. Regis Paper Co. well No. 11, Cantonment	1959-60	2	0.3	0.4	0.2	3.6	4.8	2.4	Deep well.
Century - Hecker & Mayo St.	1960	1	2.3			7.0			Shallow well.
Chemstrand Corp., well No.2	1958	1	0.2			5.6			Deep well-385 feet.
Pensacola, Camp Franklin, 9th Avenue	1958	1	0.3			2.6			City well
Pensacola, Carlann Shores S/D	1959	1	4.9			13.0			Shallow well
Pensacola, Country Club	1958	1	0.2						Well

Note: Number in parentheses shows the number of analyses upon which the average was computed if different than the total number shown.

(8/15/61)

SECTION II

WATER QUALITY FIELD STUDY

INTRODUCTION

Anticipating gaps in the surface water quality data, twenty-seven sampling stations were established throughout the Southeast River Basins area. The locations of these stations are shown in Figure 0-1 and the exact description of each station is given in Table 0-1.

Data on the physical, chemical, bacteriological (sanitary), and radiological quality of the surface waters in all but one of the basins were collected. Table 0-2 summarizes the results of the Water Quality Field Study.

The field study was conducted in three phases: the first during the fall of 1960,(November); the second during the winter of 1960-61,(January and February); and the third during the summer of 1961,(June). This was done to ascertain any changes in quality which may have occured during different seasonal conditions. Also, the time of daily sampling was staggered so that a representative view of the water quality at each station could be obtained.

The sampling and analyses were performed by a team of samplers, chemists and bacteriologists from the Public Health Service's Robert A. Taft Sanitary Engineering Center. A trailer laboratory unit was brought to Macon, Georgia and all the analyses except the radioactivity counts were made there.

In accordance with the U. S. Study Commission's request, the following analyses were made at each of the stations:

1. pH
2. Temperature
3. Dissolved Oxygen
4. Total Alkalinity
5. Turbidity
6. Color
7. Total Organic Nitrogen
8. Orthophosphates
9. Total phosphates
10. Coliform MPN
11. Alpha Radioactivity Counts
12. Beta Radioactivity Counts

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Also, stage readings were made at each station where possible so that discharges could be determined.

All analyses were made in accordance with the tests prescribed in the Eleventh Edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.

Because of the necessity of starting the first phase of the study as soon as was possible, several analyses were not made during the November period. These included turbidity, color, total organic nitrogen, orthosphosphates, and total phosphates. In the two subsequent studies, however, all the analyses listed were performed. Because of the complexity and length of alpha and beta radioactivity determinations, these analyses were made on weekly composite samples taken at each station rather than daily samples.

DISCUSSION OF RESULTS

Savannah Basin

One station was established in this basin or the Savannah River below Augusta.

The average dissolved oxygen reported during the three phases of the field study consistently exceeded 75 percent of saturation with no one analysis showing less than this amount. Total organic nitrogen was less than 0.5 ppm and total phosphates appeared insignificant. The median concentration of coliform organisms ranged from 12,150 to 23,000 MPN per 100 ml with a maximum of 93,000 reported in the winter study. The beta radioactivity of the water was relatively high ranging from 16.6 to 194.3 uuc/l for the dissolved fraction. The unusually high beta activity was reported in the summer study and may have resulted from a reported breakdown in the waste handling operations at the Savannah River Atomic Energy Plant located upstream from the sampling station. The alpha activity during this same period was also high with a value of 13.9 uuc/l being reported for the dissolved fraction. The average alkalinity ranged from 14.1 to 20.8 ppm.

Ogeechee Basin

Four stations were established in the Ogeechee Basin; three on the Ogeechee River near Louisville, Rocky Ford and Fort Stewart, Georgia and one on the Canoochee River near Claxton, Georgia.

The average dissolved oxygen reported at the three stations on the Ogeechee River during the fall and winter studies exceeded 85 percent of saturation. However, during the summer studies, the average dissolved oxygen ranged from 63.9 to 70.9 percent of saturation. The average dissolved oxygen reported at the Canoochee River station ranged from 57.1 to 86.4 percent, the minimum being recorded during the fall survey. The median coliform concentration reported at all the stations in the basin ranged from 590 to 3350 MPN per 100 ml. The total organic nitrogen reported at the three stations in the Ogeechee River never exceeded 0.5 ppm whereas the Canoochee River station reported average concentrations ranging from 0.54 to 0.64 with a maximum of 0.71 being reported. Total phosphate appeared to be insignificant at all the stations with averages ranging from 0.0 to 0.07 ppm being reported. Average alkalinity did not exceed 50 ppm.

Altamaha Basin

Oconee Sub-basin

Three stations were established in the Oconee sub-basin -- at Athens, Milledgeville, and Dublin, Georgia.

The average dissolved oxygen at the three stations fell below 85 percent of saturation twice. At Milledgeville, the average dissolved oxygen reported in the summer study was 65.1 percent and at Dublin, again in the summer study, it was 74.3 percent. The median coliform concentration reported at the Athens station ranged from 190,000 to 6,800,000 MPN per 100 ml. This station was located directly below several sources of municipal and industrial waste discharges which probably accounts for the unusually high coliform counts. The median coliform concentration reported at the other two stations ranged from 8400 to 93,000 MPN per 100 ml. The average organic nitrogen concentration at the Athens station ranged from 0.43 to 1.90 ppm with a maximum of 4.35 ppm being recorded. The maximum total phosphates reported was 0.26 ppm. The average organic nitrogen reported at the other stations ranged from 0.26 to 0.44 ppm with a maximum of 0.68 recorded at Dublin. The maximum total phosphates reported was 0.16 ppm at Milledgeville. The alkalinity at all three stations did not exceed 30 ppm.

Ocmulgee Sub-basin

Four stations were established in the Ocmulgee sub-basin; one on the South River near McDonough, Georgia and the other three on the Ocmulgee River near Jackson, at Macon and at Hawkinsville, Georgia.

The average dissolved oxygen reported at the South River station ranged from 49.1 to 65.9 percent of saturation. Median coliform concentration at this same station ranged from 8400 to 29,000 MPN per 100 ml and organic nitrogen averages ranged from 0.80 to 1.80 ppm. The average concentration of phosphates reported at this station ranged from 0.63 to 1.02 ppm with the orthophosphate fraction ranging from 0.58 to 0.94 ppm. The average alkalinity varied from 13.8 to 40.6 ppm. It appeared that the degraded quality of the waters at this station is due to the discharge of municipal wastes into the headwaters of the South River.

The average dissolved oxygen reported for the Ocmulgee River at Jackson ranged from 55.1 to 78.7 percent of saturation. The average organic nitrogen concentrations ranged from 0.33 to 0.76 ppm and total phosphate average from 0.02 to 0.16 ppm. Median coliform concentrations ranged from 590 to 840 MPN per 100 ml. The average alkalinity did not exceed 30 ppm.

The average dissolved oxygen at the two remaining stations on the Ocmulgee River, at Macon and Hawkinsville, ranged from 71.1 to 91.2 percent of saturation. The minimum values were reported at the Hawkinsville station during the summer study. The average organic nitrogen content at these two stations ranged from 0.38 to 0.66 ppm and total phosphate averages from 0.04 to 0.18 ppm. The median coliform concentration reported at the Macon station varied from 166,500 to 1,415,000 MPN per 100 ml with a maximum of 11,100,000 MPN per 100 ml reported. The median coliform concentrations reported at the Hawkinsville station ranged from 3350 to 68,000 MPN per 100 ml with a maximum of 98,000 MPN per 100 ml reported. The alkalinity of the three stations on the Ocmulgee River did not exceed 50 ppm.

Altamaha Sub-basin

Two stations were established on the Altamaha River, one near Baxley and one at Doctortown, Georgia.

The average dissolved oxygen reported at both stations exceeded 85 percent of saturation except at the Doctortown station during the summer study when the average dissolved oxygen was reported at 80.7 percent of saturation. The median coliform concentration reported at these stations ranged from 1215 to 4300 MPN per 100 ml. The average organic nitrogen concentrations ranged from 0.28 to 0.39 ppm and total phosphates appeared to be insignificant with averages ranging from 0.0 to 0.06 ppm being reported. Alkalinity did not exceed 50 ppm at either station.

Satilla - St. Marys Basin

Three stations were established in the Satilla - St. Marys Basin, one on the Little Satilla River near Offerman, Georgia and the other two on the Satilla River near Waycross and at Atkinson, Georgia.

The average dissolved oxygen at all three stations ranged from 58.5 to 83.4 percent of saturation with a minimum of 50 percent of saturation reported in the Little Satilla River near Offerman. Median coliform concentrations ranged from 430 to 2400 MPN per 100 ml with a maximum concentration of 46,000 MPN per 100 ml reported in the Satilla River at Waycross during the winter study. The average organic nitrogen ranged from 0.48 to 0.71 ppm and total phosphates appeared to be insignificant with averages ranging from 0.0 to 0.04 ppm being reported. The alkalinity of the waters was relatively low with a maximum of only 17.5 ppm being recorded. This low alkalinity was accompanied by a correspondingly low pH; the average pH of the waters ranging from 5.3 to 6.4. The color values reported at this station were high with averages ranging from 110 to 240. The apparent acidity and high color of these waters appears to be the result of drainage from various swamp and marsh areas into the surface streams of the basin.

Suwannee Basin

Four stations were established in the Suwannee Basin, two on the Alapaha River near Willacoochee and at Statenville, Georgia, one on the Little River near Adel, Georgia, and one on the Withlacoochee River near Pinetta, Florida.

The average dissolved oxygen reported at the two stations in the Alapaha River exceeded 75 percent of saturation except at the Willacoochee station during the summer study when 64.8 percent of saturation was reported. The median coliform concentrations at these two stations ranged from 410 to 1800 MPN per 100 ml, with a maximum of 4600 MPN per 100 ml reported at both stations during the winter survey. The average organic nitrogen at both stations ranged from 0.51 to 0.59 ppm. The total phosphates recorded at the Statenville station varied from 0.07 to 0.21 ppm in comparison to a range of 0.0 to 0.09 ppm at the Willacoochee station. The average color at both stations ranged from 60 to 165, and the maximum alkalinity was reported at 15.0 ppm. The pH was low with averages ranging from 5.7 to 6.6 As in the Satilla - St. Marys Basin, drainage from swamp and marsh areas may have accounted for the low alkalinity and pH and the high color values.

The average dissolved oxygen content of the Little River near Adel ranged from 64.7 to 76.7 percent of saturation and the median coliform concentrations from 1215 to 2615 MPN per 100 ml. The average organic nitrogen ranged from 0.47 to 0.68 ppm and the total phosphates from 0.0 to 0.16 ppm. Again, both alkalinity and pH were relatively low and color high. However, these values were not as extreme as reported in the Alapaha River.

The average dissolved oxygen content of the Withlacoochee River near Pinetta, Florida ranged from 53.4 to 55.1 percent of saturation. The median coliform concentrations ranged from 410 to 4300 MPN per 100 ml and the average organic nitrogen from 0.48 to 0.63 ppm. Total phosphate averages ranged from 0.23 to 0.57 ppm with the orthophosphate fraction ranging from 0.16 to 0.40 ppm. Alkalinity was relatively high during the fall study with a maximum of 97.6 ppm reported. In the winter study, the maximum reported was 23.5 ppm. Color averages of 70 and 110 were reported.

Ochlockonee Basin

One station was established on the Ochlockonee River at Thomasville, Georgia.

The average dissolved oxygen reported at this station ranged from 50.9 to 87.1 percent of saturation with a minimum of 34.1 percent reported during the fall study. Also, during the fall study, a median coliform concentration of 695,000 MPN per 100 ml was reported in comparison to median values of 11,250 and 29,000 MPN per 100 ml reported in the winter and summer surveys. The relatively low flows recorded during the fall study may have accounted for the above differences in water quality. The average organic nitrogen reported ranged from 0.88 to 1.01 ppm with a maximum of 1.26 ppm reported. Total phosphate averages ranged from 0.44 to 0.47 ppm with the orthophosphate fractions varying from 0.42 to 0.43 ppm. Alkalinity ranged from 11.9 to 44.4 ppm and pH from 6.4 to 6.8. Turbidity ranged from 10 to 65 and color from 37 to 120. An unusually high dissolved alpha count of 4.0 uuc/l was reported during the winter survey. The apparent degraded quality at this station appeared to be the result of municipal waste sources located above the station.

Apalachicola - Chattahoochee - Flint Basin

Flint Sub-basin

Three stations were established on the Flint River, one near Griffin, one near Montezuma, and one at Albany, Georgia.

The average dissolved oxygen at all three stations ranged from 74.5 to 99.2 percent of saturation. The median coliform concentration at the Albany station ranged from 9300 to 166,500 MPN per 100 ml with a maximum of 430,000 MPN per 100 ml reported during the summer study. The median coliform concentrations at the remaining two stations ranged from 930 to 4300 MPN per 100 ml. The average organic nitrogen reported at all three stations ranged from 0.24 to 0.48 ppm and total phosphates appeared insignificant with averages ranging from 0.0 to 0.06 ppm being reported. Alkalinity did not exceed 50 ppm.

Chattahoochee Sub-basin

Two stations were established on the Chattahoochee River, one near Franklin and the other at West Point, Georgia.

The average dissolved oxygen reported at the Franklin station ranged from 73.8 to 77.1 percent of saturation. At the West Point station, the average dissolved oxygen ranged from 78.6 to 93.2 percent of saturation. Median coliform concentrations at the Franklin station ranged from 43,000 to 93,000 MPN per 100 ml in comparison to a range of 6800 to 22,500 MPN per 100 ml at the West Point station. The average organic nitrogen at both stations ranged from 0.30 to 0.52 ppm. Total phosphate averages ranged from 0.13 to 0.32 ppm with the orthophosphate fractions ranging from 0.12 to 0.24 ppm. Turbidity was reported as high as 300 at the Franklin station and 230 at the West Point station, both occurring during the summer study. Alkalinity did not exceed 30 ppm at either station.

TABLE O-1
DESCRIPTION OF SAMPLING STATIONS
SOUTHEAST RIVER BASINS

Station No.	Location	Description
1	Savannah River, below Augusta	On U.S. Highway 301 bridge, nine miles east of Millhaven; Screven County, Ga.
2	Ogeechee River, near Louisville	On U.S. Highway 1 bridge, one mile below Louisville & Woodley Railroad, two miles south of Louisville; Jefferson County, Ga.
3	Ogeechee River, near Rocky Ford	On paved county road, one mile southwest of Rocky Ford, at second bridge out of Rocky Ford toward Portal; Screven County, Ga.
4	Ogeechee River, near Fort Stewart	On U.S. Highway 17 bridge, one mile east of Fort Stewart, two miles northeast of Richmond Hill; Chatham County, Ga.
5	Canoochee River, near Claxton	On State Highway 73 (U.S. Highways 25 and 301) bridge, two miles northeast of Claxton; Evans County, Ga.
6	Oconee River, at Athens	On Cemetery Street Bridge, in Athens, ½ mile downstream from U.S. Highway 78 bridge; Clarke County, Ga.
7	Oconee River, at Milledgeville	On State Highway 24 bridge, at eastern edge of Milledgeville city limits and four miles below Sinclair Dam; Baldwin County, Ga.
8	Oconee River, at Dublin	On U.S. Highway 80 bridge, at western edge of Dublin city limits; Laurens County, Ga.

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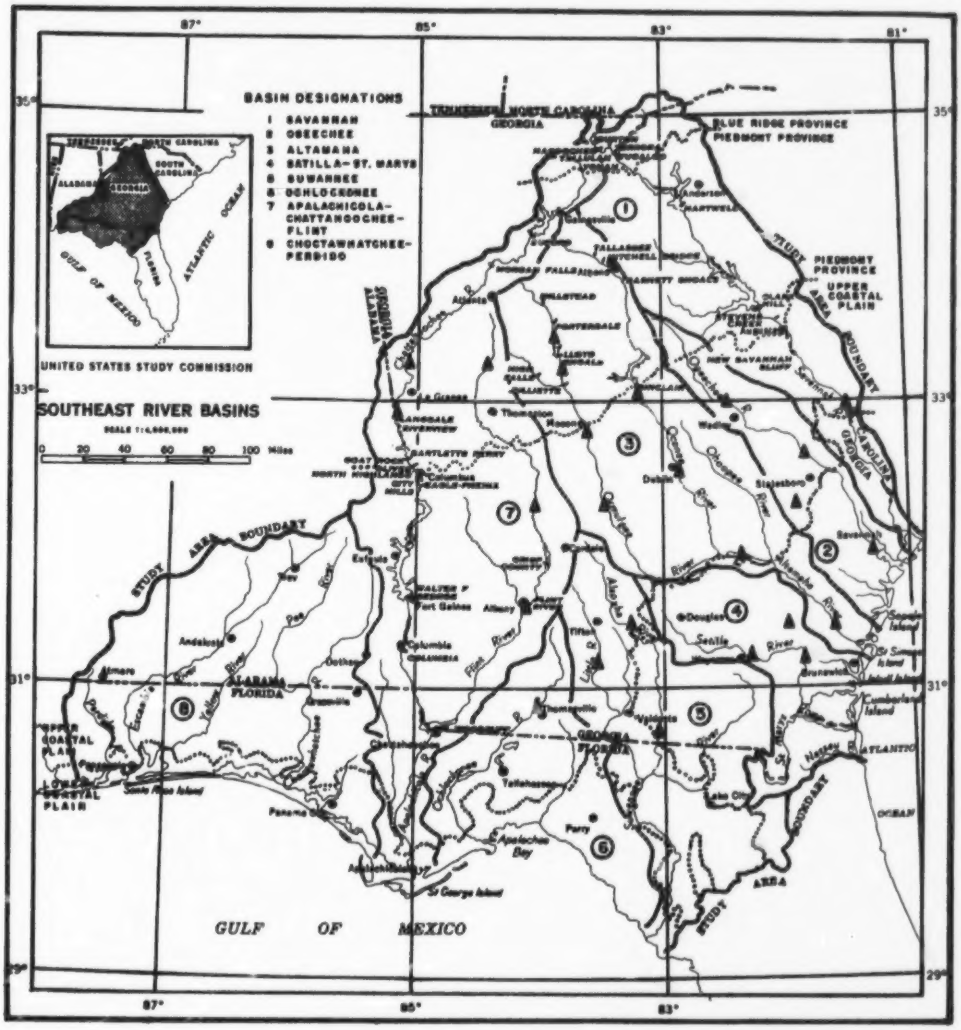
TABLE 0-1 (CONT'D)
DESCRIPTION OF SAMPLING STATIONS
SOUTHEAST RIVER BASINS

Station No.	Location	Description
9	South River, near McDonough	On State Highway 81 bridge, 14 miles east of McDonough, 10 miles southwest of Porterdale; at Newton and Henry County line, Ga.
10	Ocmulgee River, near Jackson	On State Highway 16 bridge, seven miles east of Jackson; at Butts and Jasper County line, Ga.
11	Ocmulgee River, at Macon	On U.S. Highway 80 (Fifth Street) bridge in Macon; Bibb County, Ga.
12	Ocmulgee River, at Hawkinsville	On U.S. Highway 341 (eastbound bridge), at western edge of Hawkinsville city limits; Pulaski County, Ga.
13	Altamaha River, near Baxley	On U.S. Highway 1 bridge, 12 miles north of Baxley; Appling County, Ga.
14	Altamaha River, at Doctortown	On U.S. Highway 25 bridge, about four miles northeast of Jessup, at Doctortown; Wayne County, Ga.
15	Little Satilla River, near Offerman	On State Highway 38 (U.S. Highway 82) bridge, four miles northeast of Offerman; Pierce County, Ga.
16	Satilla River, near Waycross	On State Highway 38 (U.S. Highway 82) bridge, three miles northeast of Waycross; at Ware and Pierce County line, Ga.
17	Satilla River, at Atkinson	On U. S. Highway 84 bridge, one mile west of Atkinson; Brantley County, Ga.

TABLE 0-1 (CONT'D)
DESCRIPTION OF SAMPLING STATIONS
SOUTHEAST RIVER BASINS

Station No.	Location	Description
18	Alapaha River, near Willacoochee	On State Highway 135, three miles south of Willacoochee; at Berrien and Atkinson County line, Ga.
19	Alapaha River, at Statenville	On State Highway 94 bridge, ½ mile west of Statenville; Echols County, Ga.
20	Little River, near Adel	On State Highway 37 bridge, seven miles west of Adel; Cook County, Ga.
21	Willacoochee River, near Pinetta	On Georgia State Highway 31 bridge, three miles north of Pinetta, Florida; on Georgia-Florida State line.
22	Ochlockonee River, near Thomasville	On U.S. Highway 84 bridge, five miles northwest of Thomasville; Thomas County, Ga.
23	Flint River, near Griffin	On State Highway 16 bridge, ten miles west of Griffin; Spalding County, Ga.
24	Flint River, at Montezuma	On State Highway 26 and 49 bridge, one mile west of Montezuma; Macon County, Ga.
25	Flint River, at Albany	On State Highway 50 (Broad Street) bridge, at eastern edge of Albany city limits; Dougherty County, Ga.
26	Chattahoochee River, near Franklin	On U. S. Highway 27 (State Highway 34) bridge, at western edge of Franklin city limits; Heard County, Ga.
27	Chattahoochee River, at West Point	On U.S. Highway 29(Eighth Street) bridge, in west Point; Troup County, Ga.

(8/15/61)


BASIN DESIGNATIONS
1 SAVANNAH
2 OGEECHEE
3 ALTAMAHA
4 SATILLA-ST. MARYS
5 SUWANNEE
6 OCHLOCKONEE
7 APALACHICOLA-CHATTAHOOCHEE-FLINT
8 CHOCTAWHATCHEE-PERDIDO
UNITED STATES STUDY COMMISSION
SOUTHEAST RIVER BASINS
SCALE 1:4,000,000
0 20 40 60 80 100 Miles
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
FLORIDA
GULF OF MEXICO
ATLANTIC OCEAN
BLUE RIDGE PROVINCE
PIEDMONT PROVINCE
UPPER COASTAL PLAIN
LOWER COASTAL PLAIN
STUDY AREA BOUNDARY
Atlanta
Gainesville
Anderson
La Grange
Thomaston
Macon
Dublin
Statesboro
Savannah
Columbus
Eufaula
Fort Gaines
Albany
Cordele
Tifton
Douglas
Brunswick
Thomasville
Valdosta
Tallahassee
Perry
Lake City
Dothan
Andalusia
Panama City
Apalachicola
Apalachee Bay
St George Island
Santa Rosa Island
Sapelo Island
St Simons Island
Cumberland Island
87°
85°
83°
81°
35°
33°
31°
29°

AUGUST 1961

WATER QUALITY FIELD STUDY
LOCATION OF SAMPLING STATIONS
SURFACE WATER
FIGURE O-1

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TABLE 0-2
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Orthophosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Radioactivity (uuc/1) /2			
							Parts per Million	Percent Saturation								Alpha Dissolved	Alpha Suspended	Beta Dissolved	Beta Suspended
1	Savannah River, below Augusta, Ga.	11- 7-60	Avg.	6452	7.3	16.6	8.84	90.0	20.8						23000	0.0	0.0	13.5	1.1
		to	Max.	7040	7.5	17.0	9.57	95.7	22.9						43000				
		11-12-60	Min.	6260	7.1	16.0	8.32	85.8	17.6						4300				
		1-30-61	Avg.	6957	7.1	7.3	10.61	87.6	14.1	12	12	0.27	0.0	0.0	12150	1.0*	0.5*	16.6	2.6*
		to	Max.	7640	7.2	8.5	10.78	89.5	19.7	15	15	0.34	0.02	0.02	93000				
		2- 4-61	Min.	6640	7.0	6.6	10.47	85.9	6.0	10	9	0.21	0.0	0.0	4300				
		6-12-61	Avg.	6973	7.0	25.6	6.51	78.9	18.7	22	89	0.26		0.0	12150	8.6	13.9	194.3	28.2
		to	Max.	7840	7.1	28.0	6.89	84.5	20.1	25	80	0.31		0.01	43000				
		6-17-61	Min.	6640	6.9	22.0	6.18	75.9	17.7	15	100	0.19		0.0	4300				
2	Ogeechee River, near Louisville, Ga.	11- 7-60	Avg.	245	7.1	10.5	9.35	86.2	17.4						590	0.0	0.0	1.1	0.7
		to	Max.	260	7.3	11.6	10.11	89.6	28.9						930				
		11-12-60	Min.	237	6.4	9.6	7.92	80.1	9.2						91				
		1-30-61	Avg.	517	7.0	3.7	11.50	86.9	8.7	8	28	0.23	0.0	0.0	840	1.0*	0.5*	2.6*	2.6*
		to	Max.	546	7.1	3.8	12.47	94.4	12.1	9	35	0.30	0.0	0.01	2400				
		2- 4-61	Min.	466	7.0	3.6	10.72	81.3	4.0	8	23	0.14	0.0	0.0	43				
		6-12-61	Avg.	435	6.8	23.6	6.09	70.9	14.3	10	76	0.30			3350	1.0*	1.0*	1.3	1.4
		to	Max.	490	6.9	25.0	6.57	73.2	18.0	15	80	0.37			9300				
		6-17-61	Min.	390	6.7	21.0	5.89	67.7	7.4	6	65	0.19			910				
3	Ogeechee River,/3 near Rocky Ford, Ga.	11- 7-60	Avg.	481	7.5	12.3	9.68	89.9	28.5						3300	0.0	0.0	1.4	0.4
		to	Max.	494	7.5	13.5	9.98	93.6	30.2						9100				
		11-12-60	Min.	462	7.3	10.6	9.19	85.3	26.1						910				
		1-30-61	Avg.	1130	7.1	3.9	11.24	85.5	14.5	8	29	0.25	0.0	0.0	930	1.0*	0.5*	2.6*	2.6*
		to	Max.	1160	7.3	4.4	11.52	88.3	18.2	9	35	0.34	0.01	0.02	2400				
		2- 4-61	Min.	1100	7.0	3.2	10.34	79.6	6.4	7	25	0.14	0.0	0.0	430				
		6-12-61	Avg.	1001	7.0	24.6	5.46	63.9	30.7	9	70	0.32		0.01	930	1.0*	1.0*	1.2	1.2
		to	Max.	1100	7.1	25.5	5.85	66.5	32.7	10	110	0.37		0.08	9300				
		6-17-61	Min.	940	6.9	22.0	5.10	61.5	29.2	5	15	0.24		0.0	750				
4	Ogeechee River,/4 near Ft. Stewart, Ga.	11-14-60	Avg.	560	7.3	16.7	8.40	85.8	30.2						840	0.0	0.0	2.7	1.1
		to	Max.	650	7.3	15.8	8.85	89.6	51.1						9300				
		11-19-60	Min.	530	7.1	18.0	7.86	79.7	18.0						230				
		1-23-61	Avg.	1340	7.1	5.9	10.83	84.9	16.0	7	58	0.41	0.0	0.04	930	1.0*	0.5*	2.6*	2.6*
		to	Max.	1460	7.1	7.6	10.98	85.9	20.2	10	65	0.48	0.01	0.13	4300				
		1-28-61	Min.	1280	7.1	4.8	10.32	82.9	12.0	4	48	0.34	0.0	0.0	230				
		6- 5-61	Avg.	3900	6.8	24.4	5.42	64.0		9	121	0.38		0.02	1215	3.1	4.9	1.0	1.1
		to	Max.	5000	6.8	25.5	5.76	67.8		10	150	0.49		0.03	2100				
		6-10-61	Min.	3000	6.7	23.0	5.13	61.8		6	80	0.31		0.01	930				

(8/15/61)

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TABLE O-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Ortho-phosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Radioactivity (uuc/l) /2			
																Alpha		Beta	
							Parts per Million	Percent Saturation								Dissolved	Suspended	Dissolved	Suspended
5	Canoochee River,	11-14-60	Avg.	6	6.7	14.6	5.86	57.1	24.0						1515	0.0	0.0	2.7	0.1
	near Claxton, Ga.	to	Max.	10	6.8	16.6	6.50	65.1	38.5						4300				
		11-19-60	Min.	3	6.5	12.5	4.95	47.9	16.4						430				
		1-23-61	Avg.	46	6.7	5.3	11.08	87.2	7.2	7	63	0.54	0.05	0.07	1665	1.0*	1.2	2.6*	2.6*
		to	Max.	62	6.8	6.8	11.39	88.2	11.0	10	70	0.67	0.13	0.14	4600				
		1-28-61	Min.	38	6.4	4.2	10.65	86.4	4.4	3	55	0.41	0.01	0.03	430				
		6- 5-61	Avg.	94	6.0	24.3	5.14	60.6		8	175	0.64		0.01	930	2.7	2.1	1.0*	1.0*
		to	Max.	184	6.0	25.5	6.10	70.3		10	200	0.71		0.06	2400				
		6-10-61	Min.	40	6.0	23.0	4.29	51.1		5	120	0.60		0.0	390				
6	Oconee River,	11- 7-60	Avg.	202	7.3	8.4	10.86	92.3	27.6						190000	0.0	0.0	1.9	0.5
	at Athens, Ga.	to	Max.	215	7.5	10.0	11.36	93.9	29.1						930000				
		11-12-60	Min.	190	7.1	6.5	10.35	90.5	25.8						36000				
		1-30-61	Avg.	301	7.0	2.9	11.87	87.5	18.1	12	5	0.43	0.03	0.04	210000	1.0*	0.7	2.6*	2.6*
		to	Max.	330	7.1	3.3	13.03	95.5	23.0	15	7	0.83	0.07	0.08	430000				
		2- 4-61	Min.	285	6.9	2.5	9.10	66.6	5.0	9	2	0.17	0.01*	0.01	43000				
		6-12-61	Avg.	448	7.2	22.6	7.88	90.3	15.8	108	32	1.90	0.03	0.12	6800000	4.1	2.2	1.0*	1.0*
		to	Max.	550	7.3	25.0	8.77	104.2	26.5	260	50	4.35	0.14	0.26	11000000				
		6-17-61	Min.	310	7.1	20.0	7.43	85.4	19.9	25	23	0.65	0.0	0.0	240000				
7	Oconee River,	11- 7-60	Avg.	2162	7.4	16.6	9.43	98.9	20.1						8400	0.0	0.0	3.0	1.0
	at Milledgeville, Ga.	to	Max.	5870	7.5	18.0	12.20	124.0	27.8						93000				
		11-12-60	Min.	425	7.1	15.4	7.64	80.5	4.1						4300				
		1-30-61	Avg.	1104	7.2	6.1	12.15	97.6	20.7	11	7	0.33	0.02	0.04	16650	1.0	0.5*	2.6*	2.6*
		to	Max.	2670	7.3	7.5	12.83	105.0	28.7	15	10	0.49	0.07	0.16	430000				
		2- 4-61	Min.	309	7.2	4.8	11.41	89.0	13.9	9	4	0.22	0.0	0.0	4300				
		6-12-61	Avg.	2614	6.8	20.8	5.91	65.1	21.7	16	86	0.26		0.0	14150	1.3	1.1	1.0*	1.0*
		to	Max.	5430	7.0	21.5	8.28	90.0	22.4	20	110	0.39		0.01	240000				
		6-17-61	Min.	340	6.7	19.5	4.45	50.0	20.9	15	75	0.14		0.0	730				
8	Oconee River,	11- 7-60	Avg.	1730	7.2	13.2	9.25	87.5	24.7						93000	0.0	0.0	2.7	0.8
	at Dublin, Ga.	to	Max.	2440	7.6	14.0	9.91	94.5	27.2						93000				
		11-12-60	Min.	940	7.0	11.5	8.52	81.9	23.0						9300				
		1-30-61	Avg.	2158		8.1	11.76	96.3	15.6	16	10	0.26	0.0	0.0	26150	1.0*	1.0	2.6*	2.6*
		to	Max.	3210		9.0	12.57	103.0	18.2	20	14	0.41	0.01	0.02	46000				
		2- 4-61	Min.	1500		7.0	11.45	84.4	4.9	15	7	0.19	0.0	0.0	2400				
		6-12-61	Avg.	3104	7.3	23.2	6.44	74.3	19.6	38	75	0.44		0.0	93000	1.0*	5.9	1.0*	1.0*
		to	Max.	4490	7.6	26.0	7.29	79.5	22.7	65	90	0.68		0.1	240000				
		6-17-61	Min.	1320	7.0	20.0	4.09	50.0	15.3	20	60	0.26		0.0	15000				

(8/15/61)

TABLE 0-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASIN
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Ortho-phosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Radioactivity (uuc/l) /2			
																Alpha		Beta	
							Parts per Million	Percent Saturation								Dissolved	Suspended	Dissolved	Suspended
9	South River, near McDonough, Ga.	11- 7-60	Avg.	211	7.1	8.2	5.96	50.2	40.6						22000	0.0	0.0	3.4	0.5
		to	Max.	219	7.2	11.0	6.72	55.8	55.3						150000				
		11-12-60	Min.	207	7.1	7.0	5.32	45.3	36.0						15000				
		1-30-61	Avg.	318	6.9	2.8	8.93	65.9	13.8	16	11	1.80	0.94	1.02	29000	1.0*	0.5*	2.7	2.6*
		to	Max.	325	7.0	3.5	11.21	83.2	28.2	20	14	1.97	1.24	1.37	43000				
		2- 4-61	Min.	312	6.7	1.5	7.75	58.2	3.3	15	8	1.46	0.22	0.72	9300				
		6-12-61	Avg.		6.8	21.8	4.36	49.1	25.6	18	27	0.80	0.58	0.63	8400	4.9	2.7	2.1	1.0*
		to	Max.		6.9	24.0	4.63	53.2	30.2	20	34	1.24	0.80	0.84	93000				
		6-17-61	Min.		6.8	18.0	3.99	44.4	23.2	15	22	0.42	0.50	0.50	2100				
10	Ocmulgee River, near Jackson, Ga.	11- 7-60	Avg.	733	7.2	12.8	7.20	67.3	26.2						680	0.0	0.0	3.6	0.5
		to	Max.	808	7.3	15.5	7.87	75.6	30.1						9300				
		11-12-60	Min.	694	7.1	9.5	6.67	63.0	23.6						430				
		1-30-61	Avg.	960	6.9	4.8	9.88	78.7	19.6	9	10	0.76	0.10	0.16	840	1.0*	0.5*	2.6*	2.6*
		to	Max.	2200	7.1	6.0	10.26	89.9	24.4	10	14	0.88	0.12	0.18	2400				
		2- 4-61	Min.	650	6.8	3.5	9.48	73.2	9.7	8	8	0.67	0.09	0.14	230				
		6-12-61	Avg.		6.7	20.3	5.00	55.1	19.9	12	18	0.33	0.03	0.02	590	1.0*	1.0*	1.0*	1.0*
		to	Max.		6.8	23.0	5.88	67.5	22.0	15	20	0.45	0.04	0.04	4300				
		6-17-61	Min.		6.6	19.0	4.44	48.3	18.8	9	17	0.20	0.01	0.0	73				
11	Ocmulgee River, at Macon, Ga.	11- 7-60	Avg.	672	7.3	13.4	9.46	89.8	33.4						510500	0.0	0.0	3.6	1.1
		to	Max.	760	7.6	15.0	9.79	94.9	50.6						1110000				
		11-12-60	Min.	630	7.0	11.0	9.13	84.5	28.1						43000				
		1-30-61	Avg.	1077	7.1	5.6	11.51	91.2	19.6	10	7	0.58	0.11	0.18	1415000	1.0*	0.5*	2.6*	2.6*
		to	Max.	1460	7.2	7.0	12.19	95.2	25.3	15	10	0.83	0.20	0.39	460000				
		2- 4-61	Min.	810	6.9	4.5	11.10	88.8	6.8	6	4	0.38	0.04	0.05	23000				
		6-12-61	Avg.		7.3	25.0	7.24	86.8	23.2	15	16	0.38	0.02	0.05	166500	1.7	1.6	1.0*	1.0*
		to	Max.		7.4	29.0	7.68	94.7	24.8	20	26	0.34	0.07	0.16	930000				
		6-17-61	Min.		7.2	21.0	6.74	82.7	22.4	10	9	0.27	0.0	0.0	43000				
12	Ocmulgee River, at Hawkinsville, Ga.	11- 7-60	Avg.	1313	7.2	12.8	8.36	78.7	30.8						10650	0.0	0.0	2.7	1.0
		to	Max.	1480	7.6	15.5	9.47	87.7	50.4						23000				
		11-12-60	Min.	1260	7.0	12.0	7.57	71.5	24.1						9300				
		1-30-61	Avg.	2478		8.8	9.38	80.2	19.2	25	15	0.48	0.06	0.08	68000	1.0	0.5*	2.6*	2.6*
		to	Max.	3610		9.0	10.30	87.8	23.0	40	19	0.54	0.10	0.11	93000				
		2- 4-61	Min.	2070		8.0	8.84	74.4	12.0	20	10	0.44	0.03	0.05	24000				
		6-12-61	Avg.		7.1	26.0	5.83	71.1	25.3	20	30	0.66		0.04	3350	1.9	2.1	1.0*	1.0*
		to	Max.		7.4	28.0	6.02	75.9	25.8	20	36	1.07		0.06	7500				
		6-17-61	Min.		6.8	24.0	5.61	66.1	24.8	20	26	0.42		0.01	1500				

TABLE O-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Orthophosphates	Total Phosphates	Coliforms, MPN per 100 ml [1]	Radioactivity (uuc/l)[2]			
							Parts per Million	Percent Saturation								Alpha Dissolved	Alpha Suspended	Beta Dissolved	Beta Suspended
13	Altamaha River, [4]	11-14-60	Avg.	3067	7.6	16.9	9.32	95.9	35.6						2300	0.0	0.0	2.2	1.6
	near Baxley, Ga.	to	Max.	3600	7.7	17.8	9.52	98.7	41.6						9300				
		11-19-60	Min.	2650	7.5	14.8	9.08	91.0	21.0						430				
		1-23-61	Avg.	4250	7.4	6.9	10.97	89.9	32.9	15	13	0.39	0.06	0.06	4300	1.0*	0.5*	2.6*	2.6
		to	Max.	4350	7.5	8.0	11.39	92.8	36.1	15	16	0.79	0.13	0.13	15000				
		1-28-61	Min.	4150	7.3	6.0	10.18	85.5	30.6	15	8	0.26	0.02	0.02	910				
		6- 5-61	Avg.		7.2	26.3	7.07	86.9		23	60	0.28		0.0	1215	5.5	1.0*	1.0*	1.0*
		to	Max.		7.3	27.5	7.42	92.9		25	85	0.38		0.01	4300				
		6-10-61	Min.		7.1	25.0	6.72	81.0		20	43	0.19		0.0	430				
14	Altamaha River,	11-14-60	Avg.	3597	7.6	17.2	9.38	96.9	36.8						3300	0.0	0.0	2.0	0.5
	at Doctortown, Ga.	to	Max.	4220	7.7	18.4	9.61	100.0	42.2						9300				
		11-19-60	Min.	3120	7.5	14.6	9.15	93.3	32.2						930				
		1-23-61	Avg.	4990	7.4	6.5	10.94	88.7	29.3	13	19	0.31	0.03	0.04	2250	1.4	0.5*	2.6*	2.6*
		to	Max.	5100	7.5	8.5	11.26	91.3	33.7	15	23	0.40	0.07	0.08	7500				
		1-28-61	Min.	4880	7.3	5.2	10.52	82.7	26.6	10	14	0.26	0.01	0.02	910				
		6- 5-61	Avg.		7.1	26.3	6.59	80.7		21	72	0.32		0.0	1655	3.5	4.2	1.0*	1.0*
		to	Max.		7.2	27.5	7.11	86.7		25	90	0.58		0.01*	9300				
		6-10-61	Min.		7.0	24.5	6.00	71.0		20	45	0.23		0.0	230				
15	Little Satilla River,	11-14-60	Avg.	14	5.0	15.8	6.76	67.8	9.5						4300	0.0	0.0	1.7	0.3
	near Offerman, Ga.	to	Max.	19	6.1	17.5	7.52	78.5	17.5						9300				
		11-19-60	Min.	11	6.0	13.0	6.00	62.5	5.0						430				
		1-23-61	Avg.	218	5.3	5.3	10.16	79.9	5.9	6	250	0.56	0.0	0.0	1215	1.0*	0.5*	2.6	2.6*
		to	Max.	380	5.6	9.0	10.70	81.6	7.9	10	160	0.67	0.0	0.01	2400				
		1-28-61	Min.	147	5.0	3.0	9.15	78.9	4.3	4	110	0.49	0.0	0.0	230				
		6- 5-61	Avg.		5.2	24.3	4.95	58.5		7	240	0.71		0.0	750	3.5	1.0*	1.0	1.0*
		to	Max.		5.5	25.0	5.80	68.3		10	250	0.76		0.02	1500				
		6-10-61	Min.		5.0	22.5	4.19	50.0		5	220	0.64		0.0	210				
16	Satilla River,	11-14-60	Avg.	68	6.2	17.3	7.43	76.7	11.0						680	0.0	0.0	2.0	1.2
	near Waycross, Ga.	to	Max.	92	6.5	19.0	8.37	83.0	17.1						2300				
		11-19-6	Min.	35	6.0	15.5	6.12	61.2	6.8						230				
		1-23-61	Avg.	425	5.3	6.1	10.14	81.4	5.7	38	110	0.53	0.0	0.0	1215	1.0*	0.5*	9.4	2.6*
		to	Max.	620	5.4	8.0	10.38	84.5	9.3	130	120	0.62	0.0	0.01	46000				
		1-28-61	Min.	303	5.3	4.5	9.78	77.3	3.2	7	100	0.44	0.0	0.0	430				
		6- 5-61	Avg.		5.6	26.3	5.30	64.7		9	140	0.48		0.02	680	5.9	1.0*	1.0*	1.0*
		to	Max.		5.7	27.0	5.60	68.7		10	170	0.69		0.07	1500				
		6-10-61	Min.		5.5	25.0	4.95	61.1		6	95	0.31		0.0	280				

(8/15/61)

TABLE 0-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISITCS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

							Dissolved Oxygen									Radioactivity (uuc/l)/2			
																Alpha		Beta	
Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Parts per Million	Percent Saturation	Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Ortho-phosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Dis-solved	Sus-pended	Dis-solved	Sus-pended
17	Satilla River,	11-14-60	Avg.	106	6.4	17.8	7.92	83.4	11.4						430	0.0	0.0	2.9	0.9
	at Atkinson, Ga.	to	Max.	114	6.7	19.5	8.31	88.1	13.5						9300				
		11-19-60	Min.	103	6.3	15.5	7.44	79.0	10.0						150				
		1-23-61	Avg.	998	5.5	6.5	9.71	78.7	6.7	7	125	0.63	0.01	0.04	2400	1.0*	0.5*	7.3	2.6*
		to	Max.	1140	5.8	9.0	10.25	81.4	13.1	10	160	0.73	0.02	0.15	4300				
		1-28-61	Min.	870	5.3	4.5	8.91	74.1	3.8	4	95	0.54	0.0	0.0	1500				
		6- 5-61	Avg.		5.9	26.6	5.64	69.3		10	165	0.53		0.02	1950	2.6	2.2	1.0*	1.0*
		to	Max.		6.1	27.5	5.90	72.5		15	180	0.62		0.03	4300				
		6-10-61	Min.		5.7	26.0	5.47	67.3		6	120	0.48		0.0	930				
18	Alapaha River,/4	11-14-60	Avg.	5	6.1	16.5	7.40	75.2	9.4						410	0.0	0.0	2.0	0.5
	near Willacoochee, Ga.	to	Max.	6	6.2	18.0	7.76	78.6	12.9						1500				
		11-19-60	Min.	5	6.0	15.5	6.83	70.5	6.3						150				
		1-23-61	Avg.	263	5.8	6.8	10.44	85.2	7.0	5	60	0.51	0.0	0.02	1800	1.0*	0.5*	3.1	2.6*
		to	Max.	500	5.9	9.0	11.09	91.0	11.0	7	85	0.79	0.0	0.09	4600				
		1-28-61	Min.	140	5.6	4.5	9.69	80.1	3.6	3	45	0.41	0.0	0.0	430				
		6- 5-61	Avg.		5.7	24.8	5.44	64.8		9	140	0.59		0.0	330	2.8	2.5	1.0*	1.0*
		to	Max.		6.0	25.5	5.90	69.5		10	170	0.68		0.01	931				
		6-10-61	Min.		5.6	24.0	5.16	61.5		5	90	0.52		0.0	91				
19	Alapaha River,	11-14-60	Avg.	56	6.5	16.9	8.47	86.8	11.1						590	0.0	0.0	1.6	0.5
	at Statenville, Ga.	to	Max.	63	6.6	19.0	9.31	96.0	12.5						1200				
		11-19-60	Min.	53	6.4	15.0	7.71	79.5	9.8						430				
		1-23-61	Avg.	315		9.2	10.02	86.8	6.4	6	165	0.56	0.14	0.17	1415	1.0*	0.5*	6.9	2.6*
		to	Max.	600		11.0	10.45	92.5	15.0	10	170	0.66	0.17	0.21	4600				
		1-28-61	Min.	228		6.0	9.31	82.5	2.9	4	160	0.52	0.07	0.13	230				
		6- 5-61	Avg.		6.6	25.8	6.24	76.1		11	130	0.57	0.08	0.13	840	12.8	1.2	1.7	1.0*
		to	Max.		7.2	27.0	6.39	78.0		15	150	0.69	0.10	0.17	4300				
		6-10-61	Min.		6.2	24.0	6.12	74.4		10	85	0.42	0.04	0.07	430				
20	Little River,	11-14-60	Avg.	8	6.5	15.6	7.69	76.7	15.8						1215	0.0	0.0	2.8	1.1
	near Adel, Ga.	to	Max.	8	6.6	17.5	8.13	80.1	17.9						24000				
		11-19-60	Min.	7	6.4	13.5	7.09	72.0	12.3						150				
		1-23-61	Avg.	59		8.4	10.77	91.7	12.9	9	50	0.47	0.02	0.16	2615	6.0	0.5*	4.1	2.6
		to	Max.	92		11.0	11.30	100.5	21.4	15	45	0.55	0.05	0.76	4300				
		1-28-61	Min.	39		7.0	10.49	85.9	7.4	3	60	0.41	0.01	0.02	930				
		6- 5-61	Avg.		6.2	24.6	5.44	64.7		40	100	0.68		0.01	1615	10.0	3.0	1.4	1.1
		to	Max.		6.4	27.0	6.10	70.2		80	140	0.92		0.04	9300				
		6-10-61	Min.		6.2	22.0	4.96	61.3		5	75	0.52		0.0	230				

(8/15/61)

TABLE O-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Ortho-phosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Radioactivity (uuc/l) /2			
							Parts per Million	Percent Saturation								Alpha Dissolved	Alpha Suspended	Beta Dissolved	Beta Suspended
21	Withlacoochee River, near Pinetta, Fla.	11-14-60	Avg.	157	7.4	18.3	5.05	53.4	95.3						410	0.0	0.0	2.2	0.9
		to	Max.	159	7.6	20.0	5.29	55.6	97.6						930				
		11-19-60	Min.	149	7.4	17.0	4.81	51.7	92.2						150				
		1-23-61	Avg.	1269		10.3	8.48	73.7	23.5	9	70	0.63	0.40	0.57	4300	1.5	0.5*	3.0	2.6*
		to	Max.	1420		11.0	9.30	78.1	31.4	15	80	0.76	0.66	0.75	24000				
		1-28-61	Min.	985		8.0	7.97	71.5	9.1	4	60	0.51	0.26	0.45	2300				
		6- 5-61	Avg.		6.8	24.2	4.68	55.1		10	110	0.48	0.16	0.23	590	17.4	1.5	1.9	1.0*
		to	Max.		7.0	25.0	5.60	64.4		15	140	0.67	0.20	0.27	9300				
		6-10-61	Min.		4.0	23.0	4.12	48.5		9	80	0.34	0.13	0.19	230				
22	Ochlockonee River, near Thomasville, Ga.	11-14-60	Avg.	40	6.7	16.0	5.09	50.9	38.3						695000	0.0	0.0	3.1	1.3
		to	Max.	40	6.8	17.5	6.72	64.6	44.4						4300000				
		11-19-60	Min.	39	6.6	14.0	3.27	34.1	27.0						3600				
		1-23-61	Avg.	276		8.7	10.18	87.1	18.6	28	47	0.88	0.42	0.44	11250	4.0	0.7	2.6*	2.6*
		to	Max.	578		10.0	10.59	91.7	23.6	65	55	1.27	0.62	0.65	43000				
		1-28-61	Min.	138		7.0	9.30	82.2	11.9	10	37	0.55	0.24	0.24	7500				
		6- 5-61	Avg.		6.4	24.8	4.81	57.4		22	85	1.01	0.43	0.47	29000	4.0	1.0	1.0*	1.0*
		to	Max.		6.6	26.0	5.45	64.2		25	120	1.25	0.67	0.75	93000				
		6-10-61	Min.		6.4	24.0	4.15	49.4		15	65	0.73	0.15	0.24	2300				
23	Flint River, near Griffin, Ga.	11- 7-60	Avg.	73	7.2	10.3	9.26	83.7	31.4						930	0.0	0.0	3.1	1.3
		to	Max.	77	7.3	12.0	9.77	90.0	35.7						9300				
		11-12-60	Min.	70	7.1	9.0	8.78	79.0	22.5						93				
		1-30-61	Avg.	132		7.2	11.67	96.0	19.8	9	15	0.26	0.04	0.06	930	1.0*	0.6	2.6*	2.6*
		to	Max.	156		8.0	12.16	99.6	36.7	10	19	0.32	0.07	0.08	4300				
		2- 4-61	Min.	116		7.0	11.22	92.1	5.3	7	4	0.19	0.0	0.03	230				
		6-12-61	Avg.		7.1	23.0	6.48	74.5	21.1	13	52	0.25		0.0	1500	7.6	1.0*	1.2	1.0*
		to	Max.		7.1	25.5	6.98	79.2	33.0	15	55	0.48		0.03	9300				
		6-17-61	Min.		7.0	19.0	6.14	71.4	29.7	10	49	0.18		0.0	390				
24	Flint River, near Montezuma, Ga.	11- 7-60	Avg.	1245	7.2	11.7	9.76	89.5	22.5						1900	0.0	0.0	1.6	0.4
		to	Max.	1270	7.4	13.5	9.99	95.2	29.0						9300				
		11-12-60	Min.	1220	7.0	10.0	9.59	85.6	19.8						930				
		1-30-61	Avg.	2170		8.3	11.46	97.0	12.9	13	12	0.24	0.0	0.0	4300	1.0*	1.3	2.6*	2.6*
		to	Max.	2680		10.0	11.00	100.0	15.4	15	16	0.29	0.01	0.01	9300				
		2- 4-61	Min.	1880		7.0	11.05	93.2	10.0	10	8	0.19	0.0	0.0	290				
		6-12-61	Avg.		7.1	25.5	6.85	82.5	19.5	14	39	0.50		0.0	4100	2.2	2.7	1.0*	1.0*
		to	Max.		7.2	28.0	6.91	85.0	21.6	20	50	0.75		0.0	9300				
		6-17-61	Min.		7.0	22.0	6.77	77.8	17.8	8	34	0.31		0.0	1500				

(P/15/61)

TABLE O-2 (CONT'D)
SUMMARY OF WATER QUALITY CHARACTERISTICS
SURFACE WATER
SOUTHEAST RIVER BASINS
(All values in ppm except as noted)

Station Number	Sampling Station	Period of Analysis		Average Discharge (cfs)	pH Value	Temperature Degrees cent.	Dissolved Oxygen		Total Alkalinity	Turbidity Value	Color Value	Total Organic Nitrogen	Ortho-phosphates	Total Phosphates	Coliforms, MPN per 100 ml /1	Radioactivity (uuc/1) /2			
							Parts per Million	Percent Saturation								Alpha		Beta	
																Dis-solved	Sus-pended	Dis-solved	Sus-pended
25	Flint River, at Albany, Ga.	11- 7-60	Avg.	1380	7.4	13.9	9.24	88.9	24.5						5900	0.0	0.0	2.0	0.5
		to	Max.	1540	7.6	16.0	9.57	95.7	30.7						23000				
		11-12-60	Min.	1300	7.2	11.0	9.05	83.7	18.1						2300				
		1-30-61	Avg.	4347		8.8	11.62	99.2	13.6	9	15	0.29	0.0	0.0	9300	1.0*	0.6	2.6*	2.6*
		to	Max.	4860		9.5	11.84	100.2	21.6	10	19	0.32	0.01	0.01	15000				
		2- 4-61	Min.	3790		8.0	11.49	98.0	8.2	7	10	0.22	0.0	0.0	3900				
		6-12-61	Avg.		7.2	27.2	6.49	80.9	34.4	12	49	0.48		0.02	166500	8.9	1.0	1.1	1.0*
		to	Max.		7.4	28.0	6.80	86.3	48.3	15	50	0.53		0.06	430000				
		6-17-61	Min.		7.2	25.0	6.27	78.4	29.2	7	48	0.35		0.0	2000				
26	Chattahoochee River, near Franklin, Ga.	11- 7-60	Avg.	2502	7.1	13.2	8.13	77.1	20.5						68000	0.0	0.0	2.6	1.0
		to	Max.	3080	7.1	14.2	8.72	84.2	22.9						93000				
		11-12-60	Min.	1890	7.1	12.2	7.66	72.4	18.8						7300				
		1-30-61	Avg.	2235		8.3	9.35	79.2	18.2	10	6	0.48	0.24	0.32	43000	1.0*	0.5	2.6*	2.6*
		to	Max.	2470		9.0	10.58	88.9	20.5	10	8	0.53	0.32	0.38	93000				
		2- 4-61	Min.	2140		8.0	8.57	72.1	14.8	9	4	0.44	0.15	0.26	24000				
		6-12-61	Avg.		6.8	22.8	6.41	73.8	16.3	140	28	0.52	0.19	0.18	93000	11.0	16.0	1.5	1.8
		to	Max.		6.9	25.0	7.06	84.2	18.7	300	40	0.80	0.20	0.22	240000				
		6-17-61	Min.		6.6	18.5	5.71	67.6	13.7	15	18	0.24	0.11	0.12	15000				
27	Chattahoochee River, at West Point, Ga.	11- 7-60	Avg.	2738	7.3	13.0	9.48	89.4	21.8						13650	0.0	0.0	2.7	0.5
		to	Max.	3360	7.3	14.2	10.50	101.2	24.9						43000				
		11-12-61	Min.	2070	7.2	11.5	8.57	82.4	18.3						4300				
		1-30-61	Avg.	2897		8.0	10.92	93.2	18.5	10	7	0.30	0.12	0.18	6800	1.0*	0.5*	2.6*	2.6*
		to	Max.	3110		8.0	11.56	98.9	20.0	15	9	0.38	0.45	0.25	24000				
		2- 4-61	Min.	2630		8.0	10.19	85.6	17.5	7	3	0.24	0.07	0.10	4300				
		6-12-61	Avg.		7.0	23.3	6.79	78.6	16.6	130	36	0.42	0.12	0.13	22500	3.6	1.0*	1.0*	1.0*
		to	Max.		7.1	25.0	7.19	84.5	19.9	230	50	0.60	0.19	0.19	240000				
		6-17-61	Min.		6.8	20.0	6.34	72.9	14.3	20	23	0.20	0.06	0.06	9300				

/1 Coliform averages are given as median concentrations.

/2 Radioactivity analysis was made on weekly composite samples.

/3 Discharge shown is for gaging station located five miles downstream.

/4 Discharge shown for this station is estimated.

* Less than value shown.

(8/15/61)

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(8/15/61)